

# The Sight-Saving Review

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## The School Ophthalmic Service \*

Austin Furniss, D.P.H., L.D.S.

SINCE the school set-up in England varies from the American, only those parts of this author's article which have an application to American conditions have been included in this extract.

THE eye and the ear are the chief gateways of learning, therefore defects here are of prime importance. Impaired eyesight is one of the commonest and most potent defects which stand in the way of a child's school education. A service for the treatment of a particular condition or defect can only be made comprehensive by an efficient organization in which the ascertainment of children suffering from that defect is complete. The earlier the ascertainment, the better the results of treatment. This applies to many other conditions besides defective vision, crippling defects being a good example. It is very important that arrangements should be fully developed for the ascertainment of defective vision and eye disease in children below school age. In the case of school children suffering from defective vision the most important means of ascertainment is the system of school medical inspection.

The work of the school doctor and the school nurse in the ascertainment of children suffering from defects can be made effective only by the active co-operation of the teachers. The teachers are in daily touch with the children and are in a more favorable position to detect symptoms indicative of a defective special sense than is a school doctor who sees the child only occasionally. Thus if a teacher notes that a child holds the book too close to the eyes, or sits in a stooping position at the desk, or complains of not being able to see the blackboard, or is backward, he should refer the child to the school medical officer for early examination. Similarly, chil-

\* Extracted, with permission, from the *British Journal of Ophthalmology*, Vol. XXIII, April, 1939.

dren with inflammatory eye disease, or with squint can be detected by the teacher, who should refer them for special attention.

### **Vision in Young Children**

The child gradually appreciates varying degrees of brightness, learns to focus on near or distant objects by the effort of "accommodation," acquires stereoscopic vision, and judges distance and color. The development of these processes is slow and conforms, with due allowance for differences in individual children, to a more or less definite pattern. The growth of the eyeball is most rapid in the first two years of life, and by the age of seven it has almost attained its maximum size. A great amount of this growth is due to increase in thickness of the coats of the eye, though the increase in the diameter of the cornea between birth and maturity is only two mm., or approximately 20 per cent. This increase occurs almost wholly during the first two years of life. The rapidity of growth displayed by the eyeball is even more noticeable than that of the brain, and it is not surprising that the eye should be peculiarly susceptible to injurious influences during early childhood. The process of adaptation which enables the eye to focus rays of light from near as well as from distant sources is known as "accommodation." Most orderly muscular efforts, such as those involved in walking and respiration, involve the alternate use of antagonistic sets of muscles. "Accommodation" for near vision is, however, peculiar since it frequently involves sustained muscular effort extending over a considerable period of time. The muscular effort entailed in continued reading is of a type comparable with that required to hold the arm up for a long time, and symptoms of ocular fatigue may therefore be frequently observed in school children. The normal eye, if overworked, may suffer from fatigue, and such fatigue is likely to occur even more readily in children who have an error of refraction; they are working under a visual handicap. Among the ordinary symptoms of eyestrain are headache, frowning, twitching, blinking, and rubbing of the eyes. There may be, in addition, some inflammation of the external parts of the eye, as blepharitis and conjunctivitis. These external eye diseases are by no means invariably due to eyestrain; they may be produced by external infection—dust and dirt, by bad nutrition, or by unclean-



liness. Since, however, the lymphatic drainage of the eyeball is hampered by sustained ocular effort, such conditions will always tend to be aggravated when any eyestrain is already present.

### The Visual Acuity—Snellen's Test

Under the school medical service the usual procedure is to test children with Snellen's long-distance chart, as a preliminary to refraction by the eye specialist.

The test is usually carried out by school nurses before or at routine inspections in the school. Care should be taken that the illumination of the chart is adequate (the illumination should be at least 10 foot-candles), that the child does not face bright light while being tested, and that the distance from the chart is 20 feet or 6 meters. The standard adopted in most areas is that if a child can read no further than 6-12 (20/40) with either eye he is referred for full ophthalmic examination. If, in addition, all cases showing symptoms of eyestrain, no matter what the visual acuity is, are referred, the majority, though not all, children in need of ophthalmic supervision are picked out. The Board of Education's Committee on Defective Vision (1931) emphasized three main points:

"1. The comparative rarity of emmetropia (normal condition) at any age, the condition being observed in only 2-3 per cent of children at the age of admission to school. Although its incidence increases with age it does not exceed 10 per cent among children about to leave school.

"2. The rarity of myopia (short sight) in children under five and the gradual increase in incidence as age advances.

"3. The great preponderance of hypermetropia (long sight) and even of high hypermetropia at all ages, though the incidence diminishes as age advances."

These conclusions enable us to infer that the eyes of children are in a dynamic state; that at birth the normal condition is one of hypermetropia, which is converted as time goes on to one of emmetropia; and that overaction in this otherwise physiological process produces a condition of myopia.

The Committee previously referred to found that although myopia of even slight degree usually gives rise to some visual defect,

the latter may not be of sufficient extent to insure that all cases are examined by refraction. Similarly, hypermetropia may be of moderate extent, even up to three diopters, without giving rise to a visual disability severe enough to refer the case for fuller examination. The correction of moderate hypermetropia of children by the provision of spectacles may be of little importance, but it is unquestionable that all cases of myopia, however slight, should be kept under observation. Emmetropia, too, which, if the inference concerning the dynamic state of children's eyes be correct, may be a stage in the conversion of the hypermetropic to the myopic eye, should be regarded with suspicion in cases where there is a family history of myopia. It is evident, therefore, that under examination by Snellen's long-distance chart, on which we base our preliminary selection of children for refraction by the eye specialist, a certain number of visual conditions requiring observation and possible treatment are missed until the visual acuity defect becomes so pronounced as to cause the child to be brought before the ophthalmic surgeon. The only method of completely overcoming this defect in the system of ascertainment would be to arrange that every child, soon after admission to school, is examined by refraction. This perhaps sounds an ideal, though it does not appear to be outside the realm of practical reality. The examination would need to be carried out only once in the school life of the large majority, for most children would reveal a normal condition of eyesight and therefore they would be exempt from re-examination.

Another defect in the system is that children are not subjected to a test of visual acuity until the age of eight. This can be overcome partly by the use of special charts, e.g., the E chart for illiterate children, though testing by such charts is tedious and the results are unreliable unless the test is carried out by an expert. The variable E test card, i.e., one in which the E signs can be rotated in any desired direction, although an old method, is suitable for many purposes. The children should be drilled to turn their extended fingers into the position of the limbs of the E shown. This method of examination has been proved, by tests with mentally defective children, to require the smallest degree of mental work. No recognition of an arbitrary character, or naming of a sign, is required, only the minimal capability of imitation, and the

power to put the fingers into the position of the E shown. No words are required, only the motion of the hand.

Returning to the E chart for young children and illiterates, I should have mentioned that the chart is utilized fairly extensively in the testing of preschool and young children, from three years old upwards in certain cities of America. This work is actively encouraged by the National Society for the Prevention of Blindness, who regard the early correction of errors of refraction as a very important factor in the pursuance of their policy. Even admitting the impracticability of using the E chart in a routine examination of infants, and the unreliability of the results obtained from it, it still remains a matter of importance that some visual test should be applied to children at the earliest possible age. If the nurses in their periodic visits to the schools tested the vision of children over six years of age, as previously stated, it would fill in that hiatus which exists between the time when the child is admitted to school and the intermediate (second-age group, eight years old) medical examination, and secure examination and appropriate treatment by an ophthalmic surgeon of many cases of defective vision, which in the ordinary course of events would not be discovered until one or two years later. Some years ago the Board suggested that school medical officers should give this matter their earnest consideration, and investigate the practicability of making a test of visual acuity of children at an earlier age than is done under the present system.

#### **Examination and Treatment**

The following are the principal activities which are comprised under the heading "Examination and Treatment":

1. Examination and treatment of defective vision due to errors of refraction.
2. Examination and treatment of squint.
3. Examination and treatment of children suffering from diseases of the eye.
4. Selection, treatment, and supervision of "partially-sighted" and "blind" children.
5. Testing of color vision by group and individual tests.

Dr. Carr, school oculist, Derbyshire, put the case of ophthalmic work very succinctly some years ago. "The primary objects of a school ophthalmic service must be the preservation of sight, that is to say, preventive; and the amelioration of defective vision already existent, that is to say, curative. The correction of refractive errors constitutes a preponderating proportion of the work of the ophthalmic surgeon, but it is by no means the most important. A correctly prescribed pair of glasses will improve a patient's vision, or enable him to use his eyes with greater comfort, and very often will do both, and may even have a remarkable effect on his health and ability to profit by instruction, and thereby on the whole of his future career. But by treating a corneal ulcer and getting it to heal before it has done irreparable damage, or by operating on a cataractous eye, the oculist has the satisfaction of preventing blindness in the first instance and of curing it in the second."

The successful working of arrangements for the treatment of children suffering from defective vision depends on large measure on the efficiency of the arrangements for "following-up" individual children by the school nurses. The nurses must keep in touch with children for whom spectacles are prescribed in order to make sure that such spectacles are obtained. Children who require periodical examination, e.g., those with myopia, should attend the clinic at the appropriate intervals determined by the ophthalmic surgeon. The nurses must inspect children for whom spectacles have been provided in order to ascertain whether those children are wearing spectacles, or whether any children through loss or damage need new spectacles.

They should test the visual acuity of all children with spectacles at least once a year, and refer any children with a change for the worse in visual acuity for full examination. The teacher is invaluable in this system of "following-up." In most areas it is usual to provide head teachers with lists of children who should be wearing spectacles and to ask for their co-operation in seeing that the children wear them, and in referring any children, who have broken or lost their spectacles, to the clinic. Thus the teacher is important in inducing children for whom spectacles have been prescribed, to get them and wear them. Children, through forgetfulness or in-

tention, fail to bring their glasses to school; glasses by accident or carelessness get broken. These untoward incidents can be avoided or corrected by the teacher, the first by the exercise of discipline, the second by the immediate reference of the case to the clinic or medical officer. Without action on her part, children who ought to be wearing spectacles may remain without them for an indefinite period and much harm may result as a consequence. Educational backwardness and disability are some of the symptoms of defective vision. The teachers alone are in a position to recognize this symptom, and their duty is to refer all children who fail to keep up with the normal classwork for full examination by the medical officer, assisting him with their knowledge of the child's visual disability and of any signs of headache or neurotic conditions.

Two other points will be dealt with here, although not strictly belonging to this section. Conditions in the classroom should be made to conform as far as possible with the general principles of hygiene of vision. Attention should be paid to lighting, to the position of blackboards, desks, and books in relation to the posture of children at the desks, and to the position in the classroom of children who suffer, or are suspected of suffering, from defective vision. The second point is that even an apparently simple procedure such as vision testing may have its pitfalls, for apart from the obvious essentials, too often neglected, such as suitable lighting, height of the test card, proper technique on the part of the observer, due regard must be given to the psychological "make-up" of the child. It has been known for a long time that defective lighting of classrooms may contribute towards the production of visual defects or may at any rate have a detrimental effect on defects already existing, but the exact amount of injury due to this factor is as yet by no means clear. Many school doctors have explored this subject. Some years ago the school ophthalmologist of Leicestershire, Mr. C. Walters, inspected a number of schools and he considered that in seven of them the lighting was defective. Four of these were among six schools showing the highest percentage of children wearing glasses. He found, of course, that the correlation between defective lighting and a high percentage of children wearing or requiring glasses was by no means exact, but the

following table from a report made by him at the time suggests a relationship:

<i>School conditions, lighting, seating accommodation</i>	<i>Total number of children</i>	<i>Number wearing glasses</i>	<i>Percentage wearing glasses</i>	<i>Number suf- fering from eyestrain</i>	<i>Percentage suffering from eyestrain</i>
Good . . . . .	2,281	156	6.7	129	5.6
Defective . . . . .	1,686	147	8.7	181	10.7

In concluding this section it can be said that in no branch of the work is this co-operation of the teachers more needed in the prevention, ascertainment and treatment of visual defects in school children.

Dr. Allardice reporting to the Wakefield Education Committee gave details of what appear to him to be the essentials of a complete ophthalmic scheme and his recommendations arise from the desire to secure the detection of defects at an early stage when treatment could be more effective and would have greater preventive value. His scheme is this:

1. The care of the eyesight of the expectant mother at the ante-natal clinic;
2. The treatment of ophthalmia neonatorum at the infant welfare clinic;
3. Ophthalmic examination of all entrants to school;
4. Reference of external eye disease to minor ailment clinic;
5. Routine refraction work at eight and twelve years of age;
6. Regular re-examination;
7. Tests for color blindness;
8. Use of the open-air school for myope classes;
9. Continuous attention to children entering on secondary education and those beyond fourteen years of age.

### **Myopia**

Myopia generally first shows itself from the age of eight, when school work begins in earnest—that is, when convergence is first used in excess. Donders reached the classification that myopia exists in three forms—a stationary, a temporarily progressive and a continuously progressive. Dr. Gimblett in the East Ham School Medical Officer's Report for 1929 wrote that comparatively few cases were noticed during the first year of school life, more ap-

peared in the second, but by far the greater number were discovered between the ages of eight and twelve.

Dr. Gimblett is of the opinion "that the incidence of myopia is affected by heredity, previous illness (particularly the acute specific fevers), and school competition." He observed that those schools distinguished by a high standard of education and competitive spirit have an incidence of myopia above the average of the other schools of the area. Out of the 170 myopes, 35 or 20 per cent were "scholars," while of the total school population of East Ham the "scholars" number  $5\frac{1}{2}$  per cent. It is interesting to note that both the incidence and progress of myopia varied directly with the standard of scholarship in the different schools. Out of the 170 cases, 29 had fundal changes when they were first seen, in three of which they became more marked while the child remained under observation. In 15 cases at first free from changes, they appeared later. An examination of the summaries of these cases suggested that the presence of fundal changes is more closely related to the rate of progress of myopia than to the extent of myopia present. As a general rule children show myopia of a comparatively mild form, and though the incidence increases with the age of the child its severity seems to bear no relation to age, the severe cases being as common in the earlier age groups as in the later. Thus we can say that myopia does not manifest itself to any great extent during the early school life of the child, but becomes more common from the eighth year onwards. In many cases structural peculiarities in the eyes no doubt favor the development of myopia, but it is probable that other cases are directly due to conditions prevailing in the schools which cause undue eyestrain. Dr. James Kerr, many years ago said: "Any child in an elementary school with marked myopia, unless the myopia can be retarded, is in a very dangerous condition as regards vision in later years."

#### **Examination and Treatment of Children With Diseases of the Eye**

This branch of an ophthalmic service has particular importance as regards the prevention of defective vision and even of blindness in that it deals with eye disease. At the outset it should be mentioned that the majority of cases of external eye disease, such as conjunctivitis, blepharitis, corneal ulcers, corneal abrasions, ker-



atitis, styes, foreign bodies, etc., are referred in the first place to the minor ailment clinics, and practically all are treated there. In the case of severe inflammatory conditions and chronic states, the child is referred to the special ophthalmic clinic. Here the case will come under expert examination and advice. A few cases, e.g., interstitial keratitis, may need treatment at a hospital or special clinic. In some cases, such as intractable blepharitis or phlyctenular conjunctivitis, the children often receive considerable benefit by a stay in a residential open-air school. Occasionally prolonged treatment under hospital conditions are required on account of the severity of the inflammation or the infectious nature of the disease, e.g., trachoma.

There are, of course, visual defects which do not depend on errors of refraction. Mr. Paterson, the school oculist to the Darlington Education Committee, reported a few years ago the discovery of a number of cases of night blindness, the cause being xerophthalmia. The condition appears to have been quickly remedied by adding to the children's diet an adequate supply of foods containing vitamin A. In all areas there are cases of children presenting ocular symptoms in whom an exhaustive examination discloses no physical defect. The percentage of such cases varies considerably in different places, but in Portsmouth, Dr. W. S. Inman found that 25 per cent of children attending the Eye Clinic required no active treatment. They were mostly "nervous" children, and he discussed the question as to whether their symptoms were produced by disharmony of mind rather than of body, and concluded by saying: "Child guidance clinics are being formed in London, and it cannot be long before they exist in every educational center in the country. One method of recognizing the nervous child will be by the disparity between the severity of the symptoms and the condition of the eyes. A happy, healthy child does not complain without just cause. If an ocular cause cannot be found and no other adequate organic explanation of the symptoms is present, the aid of a psychological department should be available."



## A New Concept of Visual Performance in Industry\*

Hedwig S. Kuhn, M.D.

AS an ophthalmologist working with industry today, Dr. Kuhn is well qualified to point out the relation of eyesight to industrial efficiency and to emphasize the necessity of analyzing visual performance and its relation to the job.

PERHAPS the most dangerous person in today's complex economic set-up is the unconscious saboteur. In industry this employee is the eye cripple. His number is legion. His lack of visual co-ordination makes of him an unwitting, and usually totally unconscious, so-called "Fifth Columnist."

Industry must give recognition to this employee because he is a potential threat to both safety and progress, as we see it, in the effort to obtain maximum efficiency in our program for national defense. He can wreck a rearmament program just as easily as the faulty depth register in his vision can cause him to misjudge the dump spot for a crane ladle of molten metal and snuff out the lives of a dozen workmen.

In our discussion of "A New Concept of Visual Performance in Industry," or "Eyes for the Job," we are going to touch upon some of the phases of this problem. But, first of all, as an ophthalmologist working with industry as well as in private practice, I must say one thing with the utmost seriousness—to be privileged to participate in the swift-moving and completely absorbing drama of industry, as it operates in America, is both an opportunity and a heavy responsibility.

Industry has evolved through three main phases: the phase of tools or machine skill; the phase of developing the handling of raw

\* Presented at the National Safety Congress, Chicago, October 9, 1940.

materials; and finally, the phase in which we are today especially interested, that of human skills (see Figure 1).

### Complexity of Industry's Problems

The enormous complexities inherent in the understanding of the concept—industry—makes necessary great divisions and subdivisions of knowledge and technique. Small worlds have grown to feed the needs of industry. Banking institutions, raw material markets, constant scientific research efforts, expert transportation, technical training centers, great purchasing concerns, gifted leadership in management, new leadership for guidance of mass labor and skilled labor, organizations to study safety hazards, factories to supply safety shoes, goggles, masks; and always—nurses and doctors to meet the human needs. Nurses and doctors must seek to accomplish their special technical task expertly, but always also seek to understand their obligations to the interests of industry as a whole; to develop tact; to adhere to policy; and to seek ways and means of bringing their special skills to serve the actual practical needs of industry.

The productivity of the individual worker, and the increasing complexity of power machinery have forced management to evaluate all factors that contribute or detract from the precision of the human being in the performance of his specific task. Industrial machine efficiency now demands the utmost of human efficiency. The psychologist, C. A. Drake, last fall reported that only 15 persons among 100 applicants possessed sufficient perceptual ability for certain inspection jobs. And yet, taken as a whole, general aptitude tests are just beginning to form part of the battery of tests used in considering applicants in industry.

Dr. Stuart Meek, of the Chrysler Corporation, in speaking of safe placement promotion by industrial physicians, emphasizes the need of understanding thoroughly the nature of all occupations carried out; and he also stresses the relationship between production and placement—in other words, recommending only those applicants who present the physical and mental attributes which enable them to produce efficiently.

Fig. 1.—Phases of Industrial Development

Three phases in the development of modern industry. Adapted from comments in *Eye Hazards in Industrial Occupations* by Resnick and Carris.

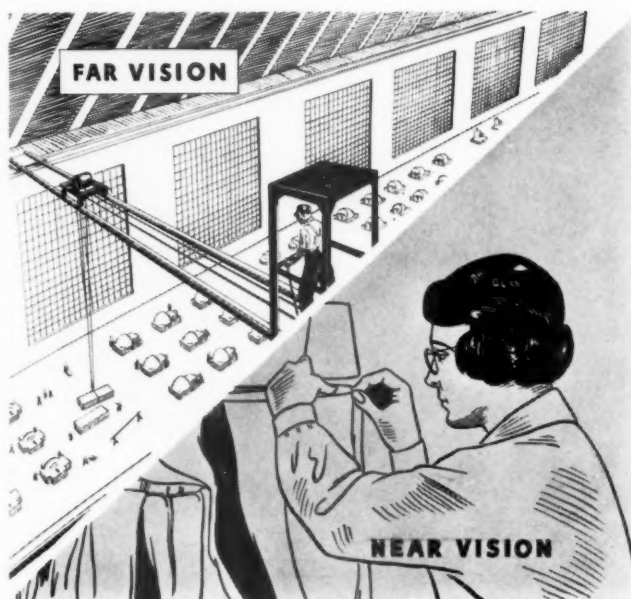
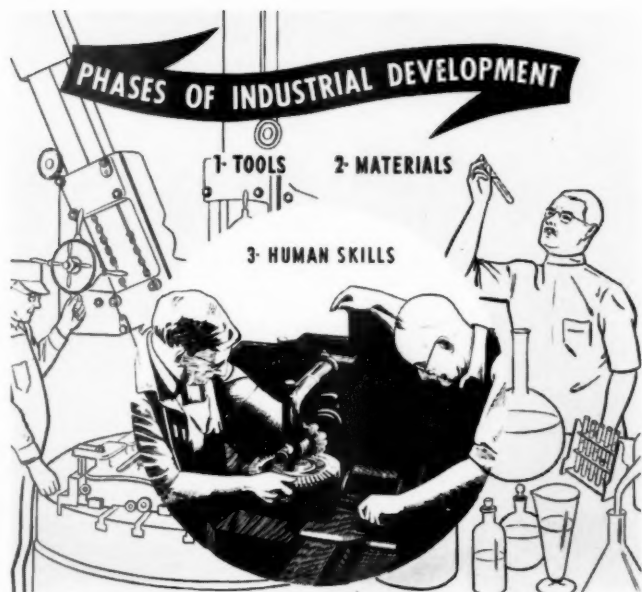


Fig. 2.—Far Vision . . .  
Near Vision

Typical differences in the circumstances requiring critical vision in industry; difference in the distances of vision required of a crane operator and a looper in a hosiery mill.

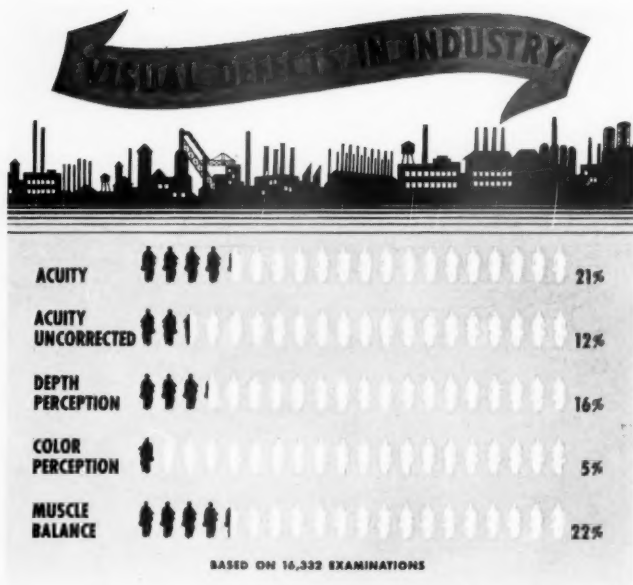


Fig. 3.—Visual Defects in Industry

Percentages of individuals in manufacturing industries who fail on various visual performance tests. Figures in black represent the proportions of failures on the various tests among the same group of workmen. Based on 16,332 examinations in various industries in the Calumet area.

Fig. 4.—The Importance of Good Visual Performance for Inspectors

Relative speed and accuracy of work done by tin plate inspectors differing in visual performance characteristics. "Good Vision," "Fair Vision," and "Poor Vision" are determined by the number of visual performance tests failed by each inspector. The vertical white bars in the upper level indicate the relative amount of tin plate inspected per unit time. The white bars in the lower level indicate the relative accuracy (reciprocal of the number of mistakes) in sorting the tin plate. Those with poorer vision do more work but do it less accurately. Adapted from a co-operative study with Joseph Tiffin, Ph.D., Purdue University.

#### IMPORTANCE OF GOOD VISUAL PERFORMANCE FOR INSPECTORS

	GOOD VISION	FAIR VISION	POOR VISION
SPEED OF WORK	36	39	44
ACCURACY OF WORK	41	39	35

### Eyesight and Industrial Efficiency

It is important to have this general background in order to understand why visual findings in physical examinations are now known to have a direct and often vitally important relationship to production and efficiency, as well as to health and safety. This brings us closer to the subject which, strictly speaking, is my special assignment—a discussion of what is meant by the phrase, "visual performance," and how that ties into industry.

Eye examinations have to give much more detailed information about what a given pair of eyes can do to meet the requirements of a given job, than has been the practice in most instances. At one extreme there is the overhead crane operator who may have to drop a load on an exact spot at an exact moment, 150 feet from where he pulls the levers (see Figure 2). To do this with maximum safety and efficiency he has to have depth perception as well as good vision in each eye, and he also must have no major defect of muscle balance. At the other extreme is the girl at a looping machine in the hosiery industry, where her work has to be set at a distance of eight inches from her eyes. She has to have perfect binocular co-ordination, and ocular balance, in order to sustain a sharp focus for eight hours. The present routine of eye testing would never disclose whether the individuals concerned possessed the visual qualifications necessary for their particular jobs.

### Definition of Terms

In the study of 16,332 individuals whose eyes we tested inside the gates of industry, we sought the following information: (1) acuity; (2) acuity uncorrected; (3) defects of stereopsis; (4) muscle imbalances; and (5) color deficiencies (see Figure 3).

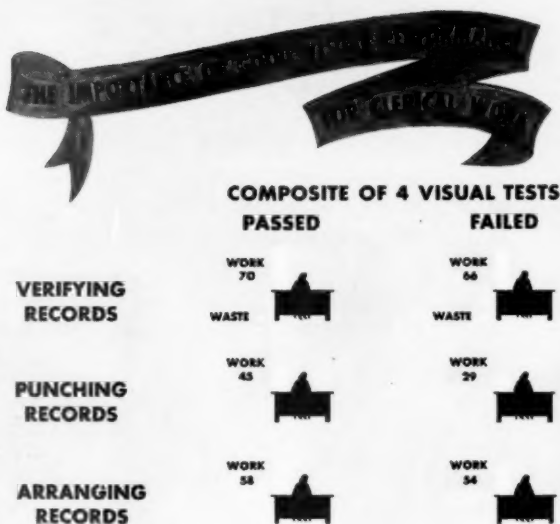
Let me define the terms used in this study of the five major defect groups mentioned. *Acuity* is the sharpness of seeing (unaided by glasses) and is recorded by the designations of the Snellen Chart or its equivalent. Most generally this test is given with the wall chart set at a distance of 20 feet, each eye being tested separately, with the other eye covered. Actually, no one goes around at his work that way and, since the sharpness of vision of each eye separately *can* be tested with both eyes open, a record of this

binocular (with both eyes) acuity is essential. *Acuity uncorrected* means the sharpness of vision of a group in which everyone wearing glasses at the time is tested with his glasses, and the defects listed are those found still to exist in spite of correction. This, of course, shows us the actual percentage of individuals working in a plant with 20/40 vision or less (the dividing line chosen between normal and defective). On this basis it can be determined how many men in each of the individual plants have serious acuity defects. By *stereopsis* we mean the ability of judging distance. It requires the use of both eyes together. A one-eyed man has no sense of a third dimension, or, as we say, no depth perception. There is always a risk when a one-eyed man lands a plane or drops hot metal on a certain spot, or drives a car. Lack of stereopsis is a serious defect in a crane operator or tractor driver or man feeding into a machine, but not necessarily in a manual laborer or a clerk. *Muscle imbalance*—each eye can see sharply, and yet, unless that pair of eyes is co-ordinated perfectly (just as a stereoscopic camera is), there can be not only blurring, headaches, fatigue and loss of depth perception, but, if extreme, diplopia or double vision. For jobs such as aviators, inspectors, sorters and workers in the hosiery industry, marked defects in muscle balance not only produce tremendous strain and even a breakdown of an operator's visual co-ordination, but they are definitely correlated with inaccuracy and inefficiency of production. *Color Blindness*, or, as we prefer to designate it, *Color Deficiency*, is also important, especially for certain jobs—trainmen using red and green signals, anyone using colored signals, people matching colors, electricians following varicolored wires, etc.—but not necessarily for all occupations.

The careful choice of inspectors, clerks and individuals doing special types of close work has become an integral part of guarding standards of efficiency production and accuracy in industry. In the hosiery industry, the girls with *the greatest speed* have the *poorest vision* (they do not see the defects), while those who are *most accurate* are those with the *best visual performance* (see Figure 4). In the statistical study of the vision of girls doing clerical tasks, where work and waste vary directly with degree of perfection of visual performance, the most important defect often is one of muscle balance (see Figure 5).

Fig. 5.—The Importance of Good Visual Performance for Clerical Work

Relative speed and accuracy of work done by clerks in three jobs involved in modern mechanical accounting systems: The vertical white columns resting on the desks represent the relative amounts of work accomplished. Adapted from a co-operative study with Joseph Tiffin, Ph.D., Purdue University.



## VISUAL DEFECTS AMONG APPLICANTS

509 CASES



Fig. 6.—Visual Performance of Lost Time Accident Cases  
Percentage of failures on various visual performance tests of a group of workers who had lost time from accidents in 1939 in comparison with corresponding percentages of a cross section of all workers in the same plant.



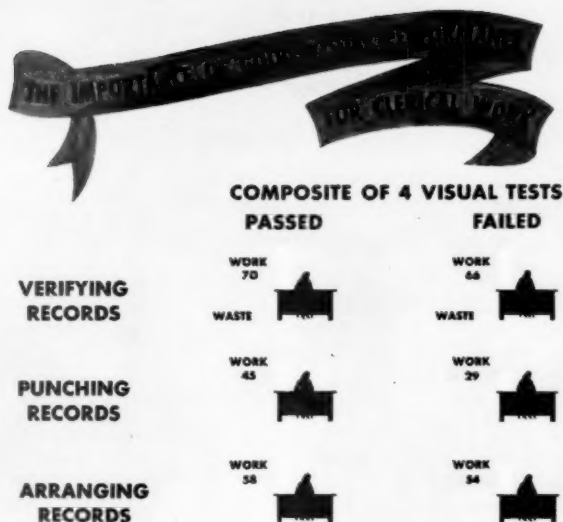
binocular (with both eyes) acuity is essential. *Acuity uncorrected* means the sharpness of vision of a group in which everyone wearing glasses at the time is tested with his glasses, and the defects listed are those found still to exist in spite of correction. This, of course, shows us the actual percentage of individuals working in a plant with 20/40 vision or less (the dividing line chosen between normal and defective). On this basis it can be determined how many men in each of the individual plants have serious acuity defects. By *stereopsis* we mean the ability of judging distance. It requires the use of both eyes together. A one-eyed man has no sense of a third dimension, or, as we say, no depth perception. There is always a risk when a one-eyed man lands a plane or drops hot metal on a certain spot, or drives a car. Lack of stereopsis is a serious defect in a crane operator or tractor driver or man feeding into a machine, but not necessarily in a manual laborer or a clerk. *Muscle imbalance*—each eye can see sharply, and yet, unless that pair of eyes is co-ordinated perfectly (just as a stereoscopic camera is), there can be not only blurring, headaches, fatigue and loss of depth perception, but, if extreme, diplopia or double vision. For jobs such as aviators, inspectors, assorters and workers in the hosiery industry, marked defects in muscle balance not only produce tremendous strain and even a breakdown of an operator's visual co-ordination, but they are definitely correlated with inaccuracy and inefficiency of production. *Color Blindness*, or, as we prefer to designate it, *Color Deficiency*, is also important, especially for certain jobs—trainmen using red and green signals, anyone using colored signals, people matching colors, electricians following varicolored wires, etc.—but not necessarily for all occupations.

The careful choice of inspectors, clerks and individuals doing special types of close work has become an integral part of guarding standards of efficiency production and accuracy in industry. In the hosiery industry, the girls with *the greatest speed* have the *poorest vision* (they do not see the defects), while those who are *most accurate* are those with the *best visual performance* (see Figure 4). In the statistical study of the vision of girls doing clerical tasks, where work and waste vary directly with degree of perfection of visual performance, the most important defect often is one of muscle balance (see Figure 5).



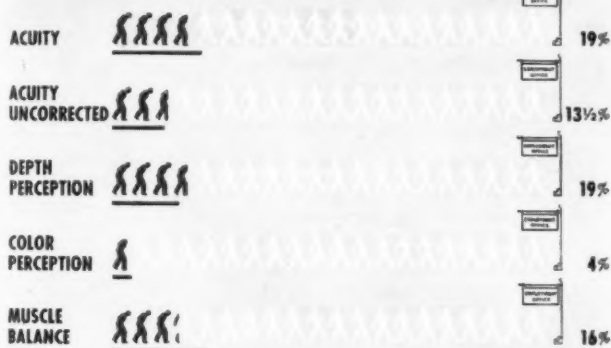
Fig. 5.—The Importance of Good Visual Performance for Clerical Work

Relative speed and accuracy of work done by clerks in three jobs involved in modern mechanical accounting systems: The vertical white columns resting on the desks represent the relative amounts of work accomplished. Adapted from a co-operative study with Joseph Tiffin, Ph.D., Purdue University.



## VISUAL DEFECTS AMONG APPLICANTS

509 CASES

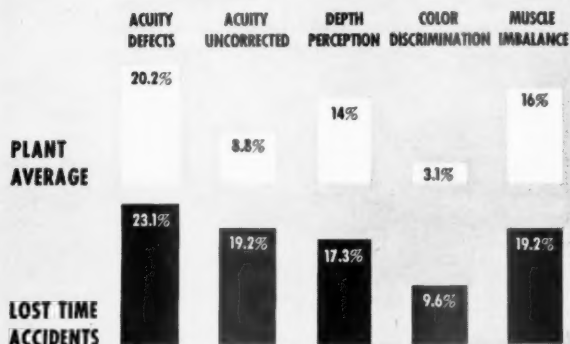


BARS REPRESENT DEFECTS AMONG EMPLOYED PERSONS

Fig. 6.—Visual Performance of Lost Time Accident Cases

Percentage of failures on various visual performance tests of a group of workers who had lost time from accidents in 1939 in comparison with corresponding percentages of a cross section of all workers in the same plant.

**VISUAL PERFORMANCE OF LOST TIME ACCIDENT CASES  
IN 1939 *Versus-*  
VISUAL PERFORMANCE AVERAGE OF THE PLANT**



**Fig. 7.—Visual Defects  
Among Applicants**

Proportion of individuals among applicants for jobs in industry who fail on various visual performance tests. The black figures represent the percentages of individuals in the same group who failed the tests. The black bars under these figures indicate the percentages of those already employed in industry on these same tests, as shown in Fig. 3.

### Practical Program

A modern program and technique of examining eyes in industry, which are based on evaluating visual acuity, depth perception, muscle balance and color, contribute a great advance in exactness of data for safety records. The man on the ground whose shoulder is broken by a crane load dropped on him is studied not only in regard to where *he was* and *what doing*, but instead the man at the levers of the crane is studied. A notation of such factors makes accident records much more complete and valuable.

A rather too vivid example of this can be cited in the case of a private patient who came for eye examination. He had normal vision but no depth perception. I asked, "What is your job?" He said, "Well, I've been grounded. I used to operate a machine." "Have you had any accidents?" I asked. "Only to get a piece of steel in my eye," was the answer. Upon raising the question of whether he had had an accident in feeding a machine and misjudging distance, he pulled his left hand out of his pocket—four fingers were gone!

An eye health program that considers these four factors contributes a new item in the determination of merit ratings and promotions where qualifications now include physical aptitudes. It also contributes a saving of dollars and cents in types of work involving inspecting and assorting. As has been previously mentioned, there is a direct statistical correlation between perfect vision and accuracy. It contributes to the size of the pay envelope in industries where piece work is done. Further, an eye health program considering the four factors enumerated, contributes information on which to base rehabilitation needs in setting up the great training programs for national defense. Neither the government nor a private organization will want to finance the training of an individual, who, when trained, will be sure to be rejected by industry. (See Figure 6, which shows the percentages of defects in applicants before whom loom the new standards of visual performance.)

Most dramatic, perhaps, are the results of a special study just completed. Analyzing the visual defects in 80 per cent of the men involved in lost-time accidents during 1939, in a very large plant,

we have found a direct correlation in all five visual defects which make up visual performance (see Figure 7). For example, the plant average of uncorrected acuity is 8.8 per cent, while the uncorrected acuity in the lost-time accident cases was 19.2 per cent—more than double! Color vision deficiency was 3.1 per cent in the plant as a whole, and 9.16 per cent in the lost-time accident cases.

Previous attempts to study vision and its relationship to accidents have failed for two reasons: first, because accident records have not given the necessary data; and secondly, because the acuity alone (and that taken only for each eye separately) was known and recorded in evaluating that individual's visual performance. Having searched the literature for a comparable study prior to this investigation without success, we feel very proud of being able to contribute this particular project.

#### **Method of Analyzing Visual Performance**

Now, just exactly how do we analyze an individual's visual performance, which includes acuity, depth perception, color sense, and muscle balance; and, how do we use these findings to determine who can be a crane operator or a looper or a stenographer or a machinist? We have discarded the Snellen wall chart as inadequate, even for a visual acuity test alone, because of poor lighting, memorizing, and so on. We must have a vision test of each eye separately, but with both eyes open. For this we should use a binocular instrument. Such an instrument already exists for the study of visual aptitudes in students within the grades and in colleges. The complexity of its record forms, the far too academic and impractical interpretations made of the findings, and the need for additional special tests and mechanical improvements, made it imperative to design a new instrument for specific use in industry. This has been undertaken by one of our largest optical manufacturers. Such an instrument with a complete program for its use in industry will be available in the near future—as soon as it has been checked and meets in every way the scientific requirements. And, may I say here, that it was conclusively demonstrated that such a visual testing program must be made under the control and guidance of the medical department, or medical consultants of industry—both

to insure its accuracy and continued practicability, and to prevent commercial exploitation of so important a part of the great programs for industrial safety and efficiency.

The battery of tests include tests for stereopsis, color sense, and muscle balance, as well as for visual acuity. It takes an average of about three minutes to check an individual for these four basic visual aptitudes. Simplicity, clarity, and a smooth running technique of handling the whole procedure make it a practical and accurate method. In some industries the tests are run, or can be run, by nurses trained to give them, or by an employment department staff so trained, whose function is merely to secure the data. The personnel departments, in consultation with the medical director or, best of all, the company ophthalmologist, however, must work out the visual standards practical and valuable to the specific jobs under consideration. Ophthalmologists serving industry need to assume a greater responsibility to industry than merely to remove foreign bodies, sew up torn lids, or operate on injured eyes, important as these may be. They must equip themselves so that they can consult with management, personnel directors, safety directors, employment officials, heads of training departments, and they must be informed on the nature of each job and its specific requirements. Only after such a solid foundation of complete factual knowledge can we, as ophthalmologists, advise industry of what eye standards to set, advise them on the interpretation of defect findings, and establish the principles of "Eyes for the Job."

#### **Rehabilitation Programs for Those with Visual Defects**

The rehabilitation program for employees found with defective vision in a survey of a given plant, and for applicants seeking training for skilled jobs in industry, is still another great field of allied service. And here it would seem pertinent to mention that rehabilitation does not confine itself to getting an employee to buy a pair of glasses or to have a cataract operation performed. Rehabilitation, as well as correction before employment, of existing defects has tremendous possibilities in training programs. You can train personnel to acquire certain visual aptitudes, just as training departments have been used to train other aptitudes.

Muscle imbalances and often minor defects of stereopsis can be

corrected by orthoptic training. This can best be illustrated by citing a case—a young chap who was a crane operator. He came to us complaining of headaches and other troubles. He had perfect vision but a marked muscle imbalance. We made provisions in our office for him to obtain orthoptic training, which was completed on the day before Christmas. He said, "The fellows working under me do not know it, but they have a good reason to celebrate. When I started training here, I could not tell within ten feet of how close I was to the spot where I was to drop my load except as I judged by pillars, stationary machinery, windows, etc. Now I can drop my load on a dime without any such assistance."

Whenever this story is told to safety directors, their hair rises on their heads, just as yours and mine would if we were flying with a pilot who could not judge how far above a high tension wire he was, while landing his plane.

### **Eliminating Visual Handicaps as a Bottleneck in Industrial Efficiency**

Now, one more vital fact as yet just beginning to become a factor in management's comprehension of its own bottle-necks. If the efficiency of the present employed force of skilled labor could be increased 3 to 5 per cent, it would cancel the present lack of skilled labor or the likelihood of such a shortage occurring. Job training inside industry, plus the proper type of physical examination (including visual performance as well as other aptitude tests), would accomplish this 3 to 5 per cent increase in efficiency. It would do this without any of the personnel problems arising when it is necessary to displace men now at work, causing grievances and restlessness and strikes. Machine power in industry has been geared to about 90 per cent of its possible efficiency, but to date, human power has been geared only to 50 or 60 per cent of its possible efficiency.

### **Summary**

In closing, may I say that it is my hope that you will carry away with you the following specific concepts:

1. Scientific but practical eye examinations for individual purposes must include testing the entire range of visual functions.

2. The data secured from such an examination is basic to the proper placing of employees, to their efficiency and level of production, and to their safety.

3. Medical, and especially ophthalmological, consultants to industry have only begun to see the potentialities of service not only possible and needed, but soon, I believe, to be demanded of them by management.

4. A program such as discussed is both preventive of trouble and analytical of particular job problems, but also it forms the real basis of rehabilitation objectives inside industry.

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## The General Agency's Opportunity for Sight Conservation Among Older People\*

Margaret W. Wagner†

IN the following article the author describes the necessity for better understanding by the ophthalmologist of the older patient, and the part the case worker can play in establishing such an understanding.

IT IS a relatively new experience in the case work field to approach the old age group and to attempt to identify and evaluate their problems. So meager is our knowledge concerning the aging process that we are unable to differentiate between normal senescence and pathological old age. Dr. George Lawton, Columbia University, points out that there have been no criteria developed for the adjustment of old people because as yet we do not know the meaning nor what to expect of normal old age. Old age is looked upon as an affliction. He wisely states that "we should offer old age not veneration nor indifference nor pity, which is sentimentality; we should offer understanding based on facts."

This paper offers such conclusions as have been reached as a result of our experience at The Benjamin Rose Institute in case work with the aged over a seven-year period.

The Benjamin Rose Institute in Cleveland is a private foundation, established in 1909. Its primary purpose is to grant assistance in the form of pensions to women over sixty and men over sixty-five years of age. They are encouraged to remain in their own homes insofar as possible and are helped to maintain a standard of living compatible with their earlier associations. A secondary purpose is to grant funds to provide medical care for crippled children, but

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† Appreciative acknowledgment is made to H. H. Wyand, M.D., for collaboration on medical information.

as the needs of the aged have increased, this has greatly overshadowed its work with crippled children.

The group discussed here represents persons between the ages of sixty and ninety years, the majority of whom are educated and have enjoyed a fairly comfortable, secure life. They represent the cross-section of the American urban middle class and eliminate the foreign group. The majority are women, most of whom have been protected in the home, but many have been employed in a business or professional capacity. These old people carry over many of the concepts and patterns of past generations. They have confidence in the old-fashioned physician, the doctor who looked at the tongue, applied the stethoscope over layers of clothing, and who was satisfied with a few expected questions. The theory seemed to be that "what you do not know won't hurt you." By this same token these individuals, conscious of diminishing eyesight, go to the nearest optometrist to buy glasses, which seem to improve their vision. The long examination by the ophthalmologist seems tedious and the use of drops may be considered dangerous.

The Benjamin Rose Institute provides medical care for its 350 beneficiaries and requests a complete physical examination of all new applicants. Physicians who are appointed members of the Medical Advisory Committee serve in this capacity and continue to render service when requested. The patients presenting eye symptoms are sent to the private office of an ophthalmologist. We have been most fortunate in having on our Advisory Committee a very able ophthalmologist who is interested in and sympathetic with old people. He utilizes medical treatment for incipient cataract, and in the great majority of cases where treatment has been started fairly early, growth has been retarded and vision improved so that few have required surgical treatment. From our experience, this should be avoided whenever possible. The patient of seventy years and over rarely regains his former mental and physical status after an operation. The long period of waiting before glasses can be fitted is a difficult and discouraging experience. During this interval the patient may become self-absorbed, intensely worried, and frequently gratifies self-pity by assuming a helpless attitude in order to gain attention. This is poor preparation for the effort which the adjustment to the first glasses will demand and the re-

sults are usually disappointing, for the patient may have expected a miraculous cure. In some instances, even where the results have been successful, the patient has had to be convinced. Mrs. Merry was one of these.

Old Mrs. Merry had an excellent result from the operation for cataract, but after getting her glasses she insisted that she could not see a thing. She was a jolly old soul, with Irish wit, and the interviews were usually lightened by some gaiety. One day she remarked to the case worker, "Why do you put that pink stuff on your nails?" The case worker laughingly parried, "I thought you couldn't see." Her sense of humor rescued the old lady from attempting to deny it, and she began consciously to accept the fact that she could see and to utilize such sight as she had.

In working with the aged one must be continually on the alert to catch vague complaints of diminishing vision and to question the result of any examination except that performed by a competent ophthalmologist. The average practising physician may fail to diagnose glaucoma, with possible disastrous results, or a beginning cataract may go undiagnosed until it is too late for medical or preventive treatment.

Miss Wales, a single woman of sixty-nine years, physically well preserved, sought medical advice for eye distress. A diagnosis of glaucoma was not made, but the patient was treated for several months. She suspected cataract, but being a reticent person, she did not discuss her fears. She had not adjusted to dependency and now she thought she was facing blindness. She withdrew from her social contacts; gave up her hobbies, which were reading and handwork; and faced the dark future with idle hands. As her general health suffered, effort was first directed by the case worker toward more adequate medical care and a consultation was requested and treatment plan worked out between the ophthalmologist and the former physician.

The diagnosis of glaucoma was made and the patient remained under the care of the ophthalmologist over a period of years. When first seen, in March, 1934, the tension in the left eye was 66, and the field of vision reduced 60 per cent, and the vision reduced to 30 per cent of normal. By January, 1935, the vision of the right eye was normal and the vision of the left eye 90 per cent. The patient was then allowed limited use

of her eyes. For the next two years she was examined every two months, and since 1937, every six months, as the tension was normal and vision remained the same.

By 1940 Miss Wales has become a bed patient, as the result of an acute progressive arthritis of rheumatoid type. The eyesight has kept pace with a failing body and failing mentality and will serve her to the end of her life.

In seeking to identify the cause of the intensified emotional reactions of the older person, both the psychogenic and organic elements have to be considered. Usually there is an inter-relationship between physical deterioration and personality difficulties which makes them inseparable. Diminished competence, forgetfulness, and mental confusion, due to arteriosclerosis, increase the feeling of inadequacy and insecurity. The cause of the ensuing discomfort is usually projected by the patient onto external factors, and reality becomes submerged in the emotional flow of rationalization. It is an accepted truth that older people enjoy physical comforts. An armchair and open fireplace become synonymous for comfortable old age, but just as much or more they demand mental comfort. Reality, which may be uncomfortable, is evaded and rationalization is accepted as a means of creating an acceptable situation. Therefore, without information concerning the personality difficulties of the patient and some of the emotional factors involved, the ophthalmologist may have difficulty in meeting the resistance of the patient to medical treatment.

Miss Carr, a seventy-nine-year-old single woman, had led an active but rather inconsequential life. She assumes a hyper-independent attitude and, although mentally confused and lonely, she is unwilling to accept any suggestion which might improve her situation. Her life is given over to searching for suitable living quarters, to which she moves, remaining only long enough to get acquainted, when she again starts looking for another place. The worker has given up any attempt to break this cycle, which appears to give satisfaction and for which no constructive substitute has been found. Her only other source of pleasure is reading.

When confronted with the possibility of cataract for which treatment would have to be recommended, Miss Carr refused to submit to the use of drops in the examination. She became excited and dictatorial. Her emotional reaction to the simple

procedure was out of all proportion to the situation. Her explanation was that drops had caused blindness. The case worker's interpretation was that this impulse sprang from a sense of danger. It was a defense reaction against an intolerable situation, of which momentarily the doctor had given her a glimpse. Her unconscious protective mechanism then shut out the threat of future insecurity. When the case worker attempted to discuss it with her, Miss Carr assumed a blank expression. She explained that her eyesight was adequate to serve her needs.

In this situation the case worker questions whether any attempt to break down the patient's resistance is justified. If the patient reaches a point where she can no longer see, she may then be willing to submit to an operation.

It should be the responsibility of the medical social case worker to treat the emotional factors which may obstruct the successful medical treatment of the patient. By the co-operative effort of both doctor and case worker and the pooling of the social factors and physical findings, the best results can be achieved.

In spite of the fact that Mrs. Dalton is a capable, intelligent person, she attempted to deny the possibility of cataract. Mrs. Dalton, a widow, aged sixty-seven, had enjoyed more than average advantages. She was active and self-reliant, but had found it difficult to face dependency. Her husband, a successful professional man, had been an invalid many years before his death and the greatest part of his fortune was exhausted providing for him. Mrs. Dalton's unsuccessful attempts at the age of sixty-five to support herself had been a destructive experience. She had found it difficult, if not impossible, to attribute her failure to the decreasing physical and mental capacity of age. She fought against dependency and the admission of any disability which accompanies old age.

The case worker's plan, after a pension had been granted, was to allow her maximum freedom in managing her own affairs. It did not, therefore, come to her attention that Mrs. Dalton was worried about failing vision, which she blamed on her old glasses. A radio announcement by a chain drug store, advertising free examinations if glasses were purchased, caught Mrs. Dalton's attention. She was given a brief examination and bluntly told she had cataracts. The shock was acute, the situation untenable. Mrs. Dalton then attempted a process of rationalization which would allow her to deny that she had

cataracts. She later explained her mental processes to the case worker something as follows: "That man must be wrong (but was he?); I cannot go blind, I could not live (but others do). If I tell my case worker she'll send me to a specialist and then I would really know (I would rather not know). Can I stand this uncertainty (but I cannot stand the truth)?"

Mrs. Dalton was facing not cataract but blindness. Dependency, whereby she had lost social status, accompanied by decreasing mental and physical competence, had not yet been accepted. The burden of blindness was intolerable. She stated that she finally told the case worker her fears when she realized that she was to become a greater charge, for when blindness set in she would be entirely dependent upon the agency. At no time during this interval did the patient question but that cataract and blindness were synonymous. She accepted the suggestion to be examined by an ophthalmologist, but her state of agitation on presenting herself was acute. The doctor was prepared for the patient by the medical social case worker, who informed him of her attitude and her earlier experience in order that he could deal sympathetically and intelligently with her concern. The need for a careful interpretation with the diagnosis was clearly indicated.

She was examined in February, 1933, and the diagnosis of cataract was substantiated. She has been under treatment intermittently since that time. She was first given a weak solution of dionin, and refracted. At that time her vision with proper correction was better than normal in each eye. After using dionin for a period of time, glasses were prescribed. Upon obtaining glasses the patient was convinced that she was not going to become blind and that she could use her eyes comfortably. She continued using dionin intermittently until 1936, when she was again refracted and her vision was found to remain slightly better than normal. The last examination was on December 4, 1939. At that time her vision was better than normal in each eye. The cataract had not progressed and the patient is convinced that if she continues to follow medical treatment she will never become blind.

Confidence established between the patient and doctor in this instance resulted in co-operation by the patient and the satisfactory carrying through of preventive treatment, which was made more possible by the joint effort of the doctor and case worker.

An ophthalmologist frequently has difficulty in deciding whether or not a patient should be told he has cataract. An interpretation



from the social case worker, relating to the mental and emotional state of the patient, will be a factor in helping the doctor to decide. The doctor can expect better co-operation from the patient in carrying out medical treatment if he has been told. If medical treatment is not indicated and the patient must wait until the cataract is ready for operation, it saves the patient a great deal of distress and worry if he is informed and encouraged as to the future outcome. Many patients remain comfortably in ignorance while being kept under observation and given medical treatment.

The examples given should not leave the impression that the majority of patients conscious of diminishing eyesight do not disclose their concern because of fear based on ignorance. We do not know whether a similar age group with financial means turns more frequently to the ophthalmologist than has been our experience. In the majority of our cases under medical treatment for cataract, the growth has been controlled so that few have come to the point of operation. Prevention, however, is dependent upon early discovery. It, therefore, appears to be just as necessary in the prevention of blindness with the aged to consider a broad educational program as it is in combating cancer or syphilis. The same objective is apparent, the overcoming of fear and the necessity for securing competent medical advice early.

The pain of acute glaucoma, the distress accompanying acute conjunctivitis and ulcer of the cornea, force the patient to consult the doctor. The problem of treatment of chronic glaucoma, however, hinges on correct diagnosis early and this is a problem for the medical profession. The case worker should, however, be on the alert for the seemingly minor complaints which might indicate a chronic glaucoma. In treating older people for diseases of the eye, good hygiene, proper diet, rest, and elimination of the toxic conditions prevail, as in all age groups. They appear accentuated, however, in some areas. Many older people are particularly susceptible to food fads. A high percentage known to The Benjamin Rose Institute live alone, which aggravates the tendency to eat improperly. The idea is still very prevalent that the old do not need the nourishing food required by the younger person and that meat and other proteins are harmful. Vegetables may be substituted by food which is easier to prepare. The loss of teeth in older people,

resulting in improper occlusion, may directly affect nutrition and assimilation. Constipation may result. Medical science sees a relationship between cataract and diet. The present practice of giving vitamins or liver extract as a substitute for an adequate diet is an expensive procedure.

Any treatment, particularly that which involves the co-operation of the patient, to be successful, must take into account the emotional factors related to the threat of diminishing eyesight. In one area one may become immersed in psychiatric interpretations which are complicated and difficult, but in another area it is possible to see that by some very simple device good results may be obtained.

One specific problem which repeats itself is the exhausting and depressing effect on the patient of long waiting in the confusion of clinics or dispensaries. This is poor preparation for the examination which is to follow. If this is conducted in a room with other people, the tired, apprehensive, disturbed patient finds it more difficult than usual to hear or even to see and is unable to co-operate as desired. The examining physician may be hurried and his rapid fire questions are not given the right answers. This same situation may hold true in the private office of the ophthalmologist who has an active practice. The long period of waiting necessary for eye examinations seems to be a burden which modern society has to bear at all ages, but with the older person it should be limited insofar as possible. Many of our patients have told us of their increasing distress as their imaginations took flight while waiting in an office for the verdict. It is a common occurrence for these patients to explain their long wait by saying that because they were old they were not so important and, therefore, younger patients were allowed to precede them. Diminishing eyesight or blindness is to the old person an additional threat to security and may mean the abandonment of their pursuit for happiness. The fear of uselessness, expressed to the older person as rejection, engenders hostility. When the doctor sees his patient, the combination of these emotions and the reality which he presents may result in an emotional reaction which he is unable to understand.

Mrs. Black's failure to benefit from treatment for cataract can be related to her total failure in meeting the impact of the aging process. She expresses mental conflicts and a sense of



insecurity, which keeps her in an emotional state and blocks constructive help. Mrs. Black, now sixty-five, at one time held a responsible job and was successful in business. Her life had been relatively secure. Her gratitude and relief when granted the maximum pension of \$50 a month seemed beyond expression, but in the same breath she explained her inability to live on so small an amount. She insists upon living in a high class apartment where rent absorbs too great a proportion of her income and leaves an insufficient amount to cover other expenses. She has met the situation so far by earning a little money and selling her silver and antiques, but she is facing the end of this resource. She constantly attempts to justify her existence with the case worker on the basis that she is an exception and that these luxuries are necessities. Mrs. Black evades the issue, and when faced with facts she immediately takes flight. If in the office she rises quickly from her chair and rushes out of the door. If in her home, where she cannot escape, her expression is that of a hunted animal; she wrings her hands and cries. She has built up a state of emotional anxiety through loss of money and failure to maintain the position to which she was accustomed, which leaves her in a condition of frustration. Her solution is somehow to muddle through. She dreads old age, its threatened loneliness and physical discomfort, and tries to blind herself to the future.

This patient was referred to the ophthalmologist in May, 1939, although she stated she preferred to go to an optometrist who would just give her proper glasses. A diagnosis of fairly well-developed cataract in the right eye and an incipient cataract in the left eye was made. There was a fairly high myopia in the right eye, while the left eye was still hyperopic. For this reason glasses were not prescribed, but medical treatment was instituted. The patient did not co-operate in the use of dionin, objecting to the discomfort, although transitory. Even though her use of dionin was infrequent, the cataracts did not progress. Because of her insistence glasses were finally prescribed, with the myopic lens for the right eye and the hyperopic lens in the other eye. This correction required an adjustment on the part of the patient which she finds difficult. In spite of the fact that with her correction she has normal vision, she complains that she cannot see and it is her habit to go about at home with one eye closed. In this situation the patient's fear concerning her eyes, her confusion and inability to accept any part of becoming old, makes the possibility of adjustment to her eyes very questionable.

At the time of her last visit to the ophthalmologist for a

re-check she resented a long wait, objected to a draft from the open window, accused the doctor of slighting her, and finally demanded her coat and hat, saying she would leave. She was restrained and examined by the doctor, but was not convinced that her vision had been improved.

Because Mrs. Black is relatively young and the physical findings are negative, the difficulty would seem to be functional rather than organic. The possibility of her being helped by the case worker is now frustrated because of the client's feeling of guilt regarding financial matters.

From our experience there are some relatively simple procedures which, if followed in a clinic or office, would have a very beneficial effect on the older patient. The clinic secretary or social worker in the dispensary, or receptionist in the doctor's office, should be aware of the older patient and pay particular attention to him. In the hurry to get to the doctor's office and because he is excited, frequently the patient will go with little or no breakfast. The secretary might step up to old Mrs. Jones and say how sorry she was to keep her waiting and give some minor explanation. She might explain that there is to be a long wait and suggest that the patient step out for a cup of coffee or a bite to eat. The appreciation of such friendliness and attention will wipe out the irritation, for old people respond so quickly to attention and consideration. When the patient is placed in the dark room with drops, an explanation of why he is placed there and how long it will be will eliminate much mental suffering which the patient goes through at such times.

Any program of prevention implies a program of education. The prevention of blindness and failing eyesight in the older person must come about through a broad educational effort, its purpose to inform the young as well as the old. Today the average layman is well versed in preventive measures for childhood diseases. He has a good understanding of hygiene and diet and is beginning to seek attention immediately should any symptom of cancer occur, but he still considers that second sight in old age is a blessing and a gift of God. There has been too passive an acceptance of the many preventable discomforts of old age, for advances in medical science have brought about an extension of life without preventing the accumulation of ills identified with the aging process. Arthritis,

heart disease, diabetes and other degenerative diseases are gaining wide attention, yet little has been written or is available for lay consumption on the subject of diseases affecting the eye. Failing vision is accepted as part of the burden of growing old. A person who grew up with oil lamps and gas jets is still satisfied to use 40-watt bulbs and to struggle with improperly fitted glasses.

The case worker, in dealing with the problems relating to diseases of the eye, finds herself confronted by difficulties presented by both the older patient and the medical profession. The patient is unaware that a competent ophthalmologist may be able to conserve failing sight; and the physician, on the other hand, needs to know and understand more of the emotional factors involved in dealing with problems of the aged. Older people are susceptible to advertisements for patent medicines. They are also an easy prey for quacks and faddists. They succumb to advertisements of optometry and are satisfied with the temporary improvement offered by increasing the magnifying properties of the lens without discovering the cause of the difficulty. Because they do not know, fear sets up a barrier against proper medical care, and as long as the public believes that cataract means blindness this fear will persist. Serious effort should be made to combat these fears by the educational process.

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# Mental Health for Sight-Saving Class Pupils

Ingeborg Nystrom

MISS NYSTROM discusses the various factors in school and at home which can bring about a state of mental health in sight-saving class pupils whose psychological problems may be somewhat intensified by their visual handicap.

A GREAT deal has been written about how to acquire a wholesome personality, how to be well liked, how to bring the proverbial beaten path to one's door. "There is considerable evidence that personality traits are developed gradually as acquired characteristics which eventually become habitual and an integral part of individuality. The different situations to which the child is exposed set up patterns of response, and if the same patterns are continually repeated they are apt to become permanent," said Dr. Groves.<sup>1</sup> Since the child spends a great deal of his time in school, many of the "permanent patterns" that make up his personality are acquired there. Of the responsibility of the school in helping the child develop a wholesome personality, Stanley S. Gray<sup>2</sup> says: "The school should guide the formation of normal personalities and correct those which are already abnormal. It is vastly more important for the school to correct abnormal personalities than to teach the facts of geography and arithmetic. . . . It is the function of every teacher to understand the basic principles of personality therapy and the conditions which promote normality."

## The Wholesome Personality

The wholesome personality has been defined as "an integration of both mind and body." In order to develop a well-balanced personality, it is important to keep physically and mentally fit; but each is difficult without the other. The following should contribute toward physical and mental health: (1) good habits of eat-

ing, sleeping, exercising, cleanliness, and relaxation; (2) learning to face one's difficulties and thus try to know one's limitations and abilities; (3) attempting to understand one's own behavior and emotions without becoming neurotic; and (4) acquiring a feeling of success in one's work and in one's contacts with others.

The road to mental health for children with defective vision does not differ essentially from this. The majority of them, as is true of the normally seeing, seem to adjust themselves satisfactorily; but occasionally they may need help in acquiring well-balanced personalities. According to Howard and Patry,<sup>3</sup> "every individual is a potential risk and may become maladjusted at any time during the life span, depending upon the type and quantity of environmental stress or strain or load he has to carry in proportion to his armamentarium in the nature of the original stuff of his make-up and his acquired attitudes and habits." Since, as they say, "mental illness not due to some definite physical cause usually begins with unwholesome reaction to some difficulty or situation," early recognition of symptoms of such maladjustment and the use of preventive measures are important to keep the undesirable reaction from becoming a permanent personality trait. A program of prevention for children with defective vision should put emphasis upon positive ways of securing better adjustment of the child. In the words of Mrs. Hathaway,<sup>4</sup> "the first step in all modern education is to find wherein the strength lies and to build upon that as a foundation."

### **The Sight-Saving Class, An Aid to Wholesome Personality**

Placing the partially seeing child in a sight-saving class should be the desirable way to start him on the road to mental health if he has not been able to make the proper adjustment in the regular grade. The chief reason for establishing a sight-saving class in a school for normally seeing children is to help the child with defective vision achieve a wholesome personality by keeping him in a normal environment, in which his home is the center of his interests. Although he is enrolled in a sight-saving class, he is able to live at home and attend classes with his normally seeing friends; and thus, he tends to avoid developing the feeling that he is inferior or different. He is a member of his class (second, fourth, or twelfth

grade), as is true of any child, rather than of the sight-saving class. He is a graduate of the public high school, not of the sight-saving department.

Enrollment in a sight-saving class does not, of course, guarantee satisfactory adjustment of the child. Many factors must be considered—the child himself, the administration, the teachers, other children, and his home environment.

### **The Sight-Saving Class Pupil**

**His Health.**—To promote stability of character in the sight-saving class pupil, his health should be safeguarded by every possible precaution, including care of the eyes. He should wear properly fitted glasses if he needs them, avoid eyestrain as much as possible, and do only as much close work as his particular eye condition warrants.

Good health, including eyes functioning as well as they are able, is an important aid to desirable adjustment; but in addition to this, the child should "develop a philosophy of living, a set of basic principles of conduct, an understanding of his own relation to the rest of society."<sup>2</sup>

**The Feeling of Success.**—"Success is a wholesome tonic to the personality, increasing self-respect and self-reliance and producing interest which stimulates to further endeavor."<sup>1</sup> Therefore, it is essential that the child be given worth-while tasks—tasks that he is able to do successfully. The sight-saving class makes it possible for the partially seeing child to keep pace successfully with the normally seeing boys and girls in school. He gains self-confidence, for small print is no longer a barrier for him in school accomplishment; and lessons are read to him when they are not available in large type. His papers are neatly typewritten, and he is proud to be able to do something which most of his normally seeing classmates would like to emulate. Such was the case with James.

James developed cataracts when he was in the third grade, but because of the long waiting list, he could not enter a sight-saving class. He was kept in the regular third grade for another term, could do none of the work, and naturally became a problem to the teacher. When he finally entered the sight-saving class, he was given work that he was able to do. At



first most of this had to be oral. He learned to use the typewriter and to read and write large manuscript writing. The teacher helped him find worth-while contributions for social studies, discussions in his regular grade classroom, and the teacher of that class said that usually James' report was the best given. His attitude had changed, and his happiness was very evident every time he was able to do a task successfully. He was almost as happy as when he returned to school after the Easter holidays, during which a needling operation was performed which resulted in 20/20 vision in one eye.

**A Wholesome Attitude Toward His Disability.**—Although success is necessary to a child's mental health, a sight-saving class pupil should be taught frankly to meet his disability in order to prevent compensatory behavior of an undesirable type. It may help him to know that everyone has difficulties to be overcome or to be accepted. He should learn in which activities he cannot be successful. Because a sight-saving class pupil does not wish to seem different, he often dislikes wearing glasses, reading books in large type, or using other material designed to conserve his vision. He should be led to understand the necessity of doing these things.

Helen, a very pretty girl in a junior high school sight-saving class, did not like to wear glasses outside of the sight-saving classroom, because she thought she was more attractive without them. The nurse and the teacher explained to her the necessity for wearing them, but Helen continued to take them off when she left the sight-saving classroom. The teacher discovered the reason for Helen's attitude and persuaded a social agency to assume the added expense of more becoming glasses. Then Helen became co-operative and was reconciled to wearing them during the entire day.

The child's eye condition should not be considered an excuse for results not commensurate with his ability. Praise, when deserved, usually stimulates him to further independent action.

Jane, a second-grade child with myopia, has an overly protective blind mother who insisted that her child should have a guide, although their home was only one block from the carline that would take Jane to school. When the mother talked with the other sight-saving class pupils and realized that a child younger than Jane made a street-car transfer every day

at a busy intersection, she consented to let Jane go home alone, provided another child would tell her when to get off the car.

The mother said, "I'll have someone meet Jane when she gets off the car, but be sure to telephone me when she leaves the school."

The teacher explained it would not be necessary to telephone, since the school dismissed at 3:15 every day. The father brought Jane the next morning to show her the way, but she went home alone. The next day she was praised for having gone home alone. She was pleased, and said that soon she would not need to have anyone meet her. That day she asked another child to get off the street-car with her and watch to see whether she could manage to get home alone. The next day she declared her independence, and now she travels back and forth without a guide.

**Normal Expression of Emotions.**—William H. Burnham<sup>5</sup> says that the integrated personality is "characterized by normal expression of emotion and by control of emotions," and J. Stanley Gray<sup>2</sup> says that "unrestrained emotional habits are always detrimental to a personality. Emotion fills the blood with poisons and accelerates all the organic functions. Insanity is due to lack of emotional control more than to any other one cause." Boynton,<sup>6</sup> in his book, *Psychology of Child Development*, states that normality of emotional reaction may be brought about by "avoidance of emotion-provoking situations, and the development of emotional control." The objective attitude, according to Burnham,<sup>5</sup> is "the supreme means, next to the doing of one's own task, for integrating the personality and for preserving the mental health" and its "greatest value . . . is shown in control of emotion." The sight-saving class teacher may help her pupils develop an objective attitude toward situations that are likely to arouse unwholesome emotional reactions.

Paul, a fifth-grade boy who had hyperopic astigmatism, had developed the habit of losing his temper whenever he was unsuccessful in an attempted task. When he enrolled in a sight-saving class, he found it difficult to control his temper during the typewriting practice period. When he made an error, he jerked the paper out of the typewriter, crushed it with force, and threw it into the waste basket. The teacher led him to look objectively at his difficulty by helping him to see that it

was foolish to vent one's anger on a piece of paper, and that a wiser way would be to prevent mistakes by practicing persistently. One day, several weeks later, Paul had worked the wrong problems in arithmetic, and was about to hand his work in to his fifth grade teacher. The sight-saving class teacher noticed his mistake, and wondered what his reaction would be when she told him of it. Instead of tearing the paper into bits as he would have done earlier, he laughed and said, "That's a good joke on me! Guess I'll have to get busy on the right lesson." Praised for his self-control, he gradually learned to meet his difficulties with a sense of humor.

According to Howard and Patry,<sup>3</sup> "some experience in both success and failure is necessary for mental health," and the teacher should help children "build an attitude of swallowing occasional defeat or failure as a matter of course." The majority of books about mental health give long lists of attitudes and habits that are conducive to mental well-being. Most frequently mentioned are regularity in habits of work, rest, and play; development of cultural interests; independent thinking; co-operation with others; and an understanding of oneself.

### **The Influence of Environment on Mental Health**

How an individual feels about himself is one of the most important factors in his personality, but equally important is the relationship between the individual and his environment.

**The Principal of the School.**—The co-operation of the principal is essential if sight-saving class pupils are to be well adjusted in school. The principal should be conversant with all phases of the education of these pupils and should be kept informed of new developments in the field. He should understand the philosophy underlying sight-saving classes—that the child is considered a member of the regular grade class and should take part in all activities of that class by which he can profit without eyestrain; that the child is placed in a day school class so that he may have normal social contacts; that he should be taught to be as independent as his eye condition permits.

**The Programs and Curriculum.**—Frequently, the regular school programs and courses make it difficult for the sight-saving class pupil to fit in, and situations arise which have a negative influence

on his personality. In such cases the regular programs and courses should be adapted to his needs.

In the grades, flexible programs make it more difficult for the regular grade teacher to care for the sight-saving class child. It is trying for the teacher to have the sight-saving class child interrupt by coming in for language, when the music period has had to be extended. On the other hand, it is discouraging to the child if flexibility of program makes him miss classes.

Ellen, a sight-saving class pupil in the sixth grade, came tearfully from her regular grade classroom. "I had my social studies report ready, but I missed the class; so now I can't give it, because they begin something new tomorrow. They changed the program today because one of the supervisors is here. Yesterday I missed the arithmetic class, because the dental nurse was here." Arrangements were made whereby a regular grade child was given the responsibility of seeing that Ellen did not miss activities by which she could profit. With a little help, the former child soon was able to judge for which activities Ellen should be called. This was done only when the regular grade teacher made a temporary change in her program. Otherwise, Ellen was prompt and adhered closely to her program.

In junior and senior high school, the sight-saving class child is often unhappy because he is frequently excluded, because of his vision, from classes in which he is interested. If possible, the courses should be modified to allow children of low vision to participate.

Sometimes gymnasium courses are unsuited to the child with low vision. He is often left out of ball games because of his vision, and this tends to make him develop a sense of inferiority. Saturday morning classes in gymnasium and manual training may solve the problem to some extent, but it is preferable to have sight-saving class pupils take these courses with the normally seeing boys and girls. The Saturday morning work in manual training, however, is helpful in gaining admittance to regular manual training classes; and in the Saturday morning gymnasium class, the child with defective vision has an opportunity to learn to play the games from which his sight excludes him during the week.

In the senior high schools in Minneapolis, an applied industries course is offered for credit to all sight-saving class pupils, in lieu

of sewing, shop, and auto-mechanics. The course gives the student an opportunity to demonstrate that he can be useful in industry, and the feeling of self-confidence that this gives him is a valuable aid to his mental health.

Another way of modifying the curriculum to suit the needs of the child with defective vision, and thus help give him self-confidence, is to encourage him to take part in activities in which he can participate successfully—rhythm, music, dramatics, debate.

Kenneth, a shy high school student with progressive myopia, could not play ball because of his eye difficulty. He felt inferior and found his school work difficult. He was found to have special talent for music and achieved success through free private music lessons given by the sight-saving department. The Minnesota music teachers sponsored a contest; Kenneth tried out, and was chosen to be one of ten to play in a ten-piece ensemble under a well-known director. Kenneth's success carried over into his school work. He decided to be a concert pianist, and took special interest in subjects in any way related to music. He had gained self-confidence and became a well-adjusted individual.

Since it is difficult for a child with defective vision to take part in much of the music work of the regular grade, music appreciation periods should be given to take its place. Dramatics and eurhythmics may be combined with music to help give the child a tendency toward cultural interests.

**The Other Children in the School.**—Since one of the aims of day school classes for the visually handicapped is to provide normal social contacts at home and in school, sight-saving class pupils should be encouraged to mingle with their normally seeing classmates as much as possible. When a sight-saving class pupil enrolls in a school, a regular grade pupil should be given the responsibility of helping him get acquainted. He should be encouraged to play with children of his own grade rather than with those from the sight-saving classroom.

Anna, a fourth-grade sight-saving class pupil, asked to be allowed to remain in the room during recess. "I don't have any fun," she said. Arrangements were made for another fourth-grade girl to call for Anna at recess and to see that she

would be included in games. When Anna came in from the next recess, she said, "Boy! Did we have fun!"

The sight-saving class pupil should be encouraged to join clubs of the school, for the contacts made in that way may give him a feeling of belonging and of security, besides teaching him how to co-operate with others and how to make friends.

Alice, a sight-saving class pupil with low vision, very poor hearing, and asthma, felt dissatisfied with her high school life. She felt inferior and thought the other students slighted her. Then she joined the travel group of her school. The members visited local industrial plants, interviewed prominent people, and took a trip to Chicago. The work was financed by having candy sales, operating parking lots, and by other activities within the abilities of the members of the club. By working and planning with others in the group, Alice formed many friendships. She soon joined the Blue Triangle Club (Girl Reserves) and was chosen to serve as program chairman on the cabinet of the organization. She no longer complained about being ignored, but developed a pleasant personality. She was especially elated to think she had been asked to go to the prom.

**The Regular Grade Teacher.**—A satisfactory social adjustment for the partially seeing child may be advanced through his experiences in making friends and his successful participation in group activities; but without the co-operation of the regular grade teacher, his mental well-being is well nigh impossible. The regular grade teacher should make him feel that he is wanted in her class; otherwise, every day at school is a torture for the child.

Ruth came weeping from her mathematics class. "She doesn't want me," she moaned. "I'm too much bother." The mathematics teacher had refused to admit the child to the class because this necessitated copying the assignment twice—once on the blackboard for the class and again on paper for Ruth, who could not see the work on the blackboard. The principal solved the problem by having stenciled copies of the assignment made for all the class. The sight-saving class teacher was given a copy the day before and made a copy for Ruth in clear type. The mathematics teacher was grateful for the relief from copying; and Ruth was no longer conspicuous, for, like the others, she had her assignment on paper.



The sight-saving class pupil is happier when he is included in parties, excursions, and programs of his regular grade room.

For several days Jerry had been talking about the excursion his grade was to make to the fire station. "I hope they ask me to go with them," he said. One day he came in jubilantly to the sight-saving classroom. "They asked me! They asked me!" he beamed. "They want me to go with them to the station!" Another day he had gone to class for social studies, but came back saying that he could not find his class. Later, he tried again. When he returned, he said, "They have come back, and we've been talking about what they saw. They went to the park, but they forgot to tell me."

If the sight-saving class teacher helps the child find something valuable to contribute to the class, the regular grade teacher is likely to feel that the sight-saving class pupil is an asset instead of an added responsibility. Interruptions in the regular grade classroom, caused by the coming in and going out of the sight-saving class child, should be lessened by having him go prepared to stay for the class, and not allowing him to return to the sight-saving classroom for books and material.

The sight-saving class teacher should help the regular grade teacher in every possible way to understand the sight-saving class pupil who has been assigned to her class. When she understands him and the philosophy underlying his education, she will tend to be neither too protective nor too demanding; with understanding sympathy she will help him to measure up.

The teacher who taught English was better able to help Marie when she learned that Marie lived in a poor home with two bedrooms for nine people; that she had 35 per cent. hearing loss in both ears; that she had a speech defect; and that she had progressive myopia with 20/200 vision. This teacher visited the sight-saving class to learn more about how Marie's lessons were prepared. She found one child using the talking book listening to an assigned play. Three pupils were at the typewriter preparing their lessons for other classes. A paid reader was helping a child at a clear-type map, and another was reading a history lesson. The sight-saving class teacher was reading to another pupil a more difficult lesson—one that needed explanation. Each child had a program of work which had been arranged by the sight-saving class teacher to provide



for typewriting practice periods, academic subjects, electives, paid readers, music appreciation, and help from the sight-saving class teacher.

It should be easier for the sight-saving class pupil to adjust himself, achieve mental health, and be a normal individual if the sight-saving class teacher, the regular grade teacher, and the principal are in agreement as to his treatment. There should be uniform rules for adjustment, so that there will be no question as to which classes a child with defective vision should be admitted.

**The Home Environment.**—Unless the parents of the child cooperate in carrying out the aims of the sight-saving class, the child's adjustment is likely to be far from complete. All phases of the work should be discussed with them—the need of conserving the child's vision at home as well as at school, how to help him become independent, and how sight-saving classes are conducted.

Gordon attended school in a village in which there was no sight-saving class and failed two semesters in succession. He had headaches, and consequently seldom cared to play with other boys. His mother, of course, knew that her son was bright, and could not understand his failure, until an eye examination showed that he had hyperopic astigmatism and nystagmus. The mother visited a sight-saving class in Minneapolis and learned everything she could about the class. She was anxious to have her son in a similar class, and in three weeks, after the usual routine of eye clinic, etc., Gordon was admitted. He was shy, self-conscious, and cried a good deal. Because his mother understood the aims of sight-saving classes, in two days Gordon was able to come to school alone. Later, when the mother came to visit the class, she was very much pleased with the change in him. He was able to keep pace with the others, and enjoyed playing with them, for he no longer had headaches.

The kind of home in which the child lives has much to do with his adjustment. Gray<sup>2</sup> says: "The best home for developing normal personalities is one in which live normal personalities. . . . It is impossible . . . for bad personalities to develop in homes of normal people." The ill-adjusted child may have a broken home, indulgent or neurotic parents, or he may feel that he is not wanted in the home. To secure fairly satisfactory adjustments in cases like these is a difficult task, requiring much thought and tact.

**The Sight-Saving Class Teacher.**—To promote the mental health of a child in her class, the sight-saving class teacher should find opportunities for him to develop a feeling of success—opportunities to show himself to advantage before the group, and opportunities to learn. "Teach if you are cornered, otherwise let the children learn" is a maxim quoted by Burnham.<sup>5</sup> "Frequent reassurance that the pupil is a fine, wholesome, wanted person will stimulate his desire to feel and act like normal. . . . Treat the maladjusted as much as possible like a normal child if you desire him to become one," is the opinion of Howard and Patry.<sup>3</sup>

If the sight-saving class teacher wishes to help a child achieve a well-balanced personality, she must be well adjusted herself. She must keep physically fit in order to have the enthusiasm, pleasant voice and manners, and sense of humor that she hopes to help her pupils acquire. She should try to be professional, and should enjoy her work. Howard and Patry<sup>3</sup> mention the following bad habits as causes of maladjustment in one's work:

"(1) Carelessness in performing the more unpleasant features of the job. (2) Grumbling about matters of small importance. (3) False suspicions and jealousy of others in the same work. (4) Bad temper and bickering in the family out of working hours. (5) A tendency to tire quickly of any kind of work and to be restless and pursue new jobs."

Because of the way in which a sight-saving class is conducted, it is essential that the teacher's relations with the administration and with other teachers be as free of friction as possible. Friction between the sight-saving teacher and the principal or teachers would make normal adjustment of the child in the school exceedingly difficult.

Groves<sup>1</sup> summarizes the teacher's need for a well-adjusted personality as follows: "One of the fundamental needs of the educational system, from the mental hygiene point of view, is the better adjustment of teachers themselves. Release from fear, opportunity for cultivation of diverse interests, freedom for self-expression, the privilege of continuing their profession after marriage, would go far toward recreating the whole school personnel."

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## The Forum

THIS section is reserved for brief or informal papers, discussions, questions and answers, and occasional pertinent quotations from other publications. We offer to publish letters or excerpts of general interest, assuming no responsibility for the opinions expressed therein. Individual questions are turned over to consultants in the particular field. Every communication must contain the writer's name and address, but these are omitted on request

### History of My Glaucoma (Laqueur)\*

TRANSLATORS' NOTE. — Ludwig Laqueur (1839–1909) was an ophthalmologist who, himself a sufferer of glaucoma, became famous through his discovery of the beneficial effect of eserine in this serious eye disease.

Eserine is one of the two drugs which still are the mainstay in the medical treatment of glaucoma. The other drug is pilocarpine, which was introduced by Weber in 1876.

Laqueur was born in Silesia, July 25, 1839. From 1872 on, he practised in Strassburg, where he was professor of ophthalmology and director of the University Eye Hospital.

In 1874, Laqueur experienced the first attack of glaucoma.

After experimenting on himself for a few years with his newly dis-

\* Translated by Adolph Posner, M.D., and Mark J. Schoenberg, M.D. New York, N. Y.

covered remedy, eserine, he finally submitted to operations on both of his eyes. This was four years before the discovery of cocaine, the first local anesthetic. The operations were successful.

Twenty-two years later, he described his eye condition in an article which, however, he did not permit to be published until after his death.

This paper is his autobiographic case history. Coming from the pen of a distinguished eye physician, this account is without doubt very impressive. Besides its scientific value, it is of great interest, even now—especially to those who appreciate the purely human side of the story.

### Laqueur's Story of His Glaucoma\*

I was born on July 7, 1839, of Jewish parents.

In my family history, the follow-

\* Written in September and October, 1902, and published in *Klinische Monatsblätter für Augenheilkunde*, 47: 639, 1909.

ing is to be noted: My paternal grandmother lived to be eighty-three years of age, but was blind for over thirty years. Her own description (which she had given me) of her eye disease which had set in with severe pain and inflammation, left no doubt in my mind but that she had become blind as a result of a bilateral acute glaucoma. The most famous physicians of that time, and even quacks, were consulted without success. Of her 16 grandchildren, no one but I have thus far developed glaucoma.

My father and his brothers and sisters also had healthy eyes. My brother was congenitally red-green blind.

As regards myself, I enjoyed a healthy childhood. Early in life, I noticed that, in spite of good acuity of vision, I could not distinguish colors as well as my playmates. Later, I learned that I had a typical red-green color blindness. This defect frequently caused embarrassment to me, and I tried to hide it as best I could. It was a handicap in my studies and in the practice of my specialty. In every other respect my eyes were normal and had an acuity of vision of 20/20 or, perhaps, somewhat higher. They were remarkably free of astigmatism. I was always somewhat sensitive to light and usually had very small pupils.

At the age of thirty-three, I took a three weeks' trip to Switzerland. The weather was generally clear

and because of my sensitivity to sunlight, I wore, out-of-doors, almost constantly, dark glasses mounted in a pince-nez. Even before the end of my trip, I noticed a change in my eyes. When I returned home, I realized that this change consisted of a slight astigmatism in the right eye.

One hot day, in July, 1874, I had the first attack of glaucoma. That day I returned to dinner from the clinic late and very tired, nay, exhausted and depressed by a tedious operation which I had performed. Still on the street, I noticed a fog before my right eye, and during my meal a similar fog made its appearance also in front of my left eye; then, when I lighted a match and looked at the flame, I saw for the first time in front of both eyes the ominous colored halos, which so often embittered my life in the years to come. Both eyeballs felt hard to the touch, which made me feel certain that I had glaucoma.

After some mental diversion and a walk, these symptoms subsided within a few hours and I passed the subsequent three months without a recurrence. In the left eye the symptoms recurred only at most two or three times; in my right eye, however, they appeared several hundred times before the operation.

The next attack followed again after a violent fit of passion. In the winter of 1874-75, the intervals between attacks still were long; often I was free from them for periods of

two to three weeks. In the summer of 1875 and in the following winter they returned more frequently and still later as often as three times a day (lasting one hour or longer); occasionally also at night or upon awakening early in the morning. The symptoms of my attacks were similar to those described by my glaucoma patients. In the case of the more severe and prolonged attacks, the colors faded and gave way to a colorless halo. Even the more severe attacks did not give rise to pain or any considerable redness of the eyeball. During the attacks the reduction of my vision fluctuated between  $3/4$  and  $1/10$  of normal. The field of vision never became contracted.\*

It is of great importance to know the circumstances which precipitated the attacks. More and more did I appreciate the great bearing that psychic factors have on the onset of these attacks. *A fit of anger, of anxiety, a feeling of humiliation, nay, even the pleasurable excitement aroused by a stirring piece of music or by a beautiful stage performance, brought about an attack. Among the harmful physical influences were excessive hunger and staying in the poorly ventilated, overheated rooms typical of evening gatherings. Activity in the open air, on the other hand, shortened or stopped the attack.*

\* Translators' Footnote.—At that time, some sixty years ago, the methods of examinations of fields were very crude and undeveloped.

When, in 1876, I discovered the action of eserine drops in lowering the tension in the eyes of patients suffering from glaucoma, I began to avail myself of this remedy. It has not failed in a single case and I do not recall any instance in which more than one instillation was necessary. But I soon realized that it does not prevent the recurrence of fresh attacks.

When the attacks increased in frequency (always only in my right eye), they interfered considerably with my activities. I suffered occasionally an attack during my lectures or in the midst of an operation and I had to exercise a good deal of self-control in order not to make it apparent.

I therefore gave some thought to the question of an operation. I decided to consult Dr. Horner of Zürich, Switzerland, and in December, 1878, I made a trip to see him. After a thorough examination he advised me to wait with the operation and to try to get along with the eserine drops. At the same time he prescribed a diet for me. His recommendations revealed him to be an excellent physician who knew how to individualize and who well deserved his fame.

I maintained a continuous correspondence with Dr. Horner, having at the same time established an intimate friendship with him. In the summer of 1879 I was able to report that my condition had at least not become aggravated, in spite of the

five years' duration of my illness. In November, 1879, I went again to Zürich. Dr. Horner found the visual acuity still normal, the visual field unimpaired, but the optic nerve was not entirely normal in appearance. After carefully weighing the pros and cons and taking my position into consideration, he now suggested an operation on the right eye which was to take place some time in the following spring. I accepted forthwith this sensible proposal.

It is quite natural that during the entire winter I was preoccupied with the thought of the impending operation. My career, perhaps even my livelihood, was at stake. The problem was not merely to refrain from damaging the eye through the operation, but to preserve normal or almost normal vision (and who can guarantee this?) and, in addition, I saw before me the specter of a similar disease in the other eye. Nevertheless I worked on in the usual way—except that I kept away from entertainments and *avoided more carefully than formerly everything which I knew to be harmful.*

On March 16, 1880, I was admitted to Horner's private clinic. Aside from Horner, his assistants and the superintendent, nobody knew my name. Since I felt it important that my identity should not become generally known, I requested that my name be kept confidential, which was actually carried out as far as was possible.

On March 18, Horner performed the iridectomy on my right eye. Since the latter was not irritated, the operation was not especially painful (cocaine was not yet known at the time). I would compare the sensation best to a fairly intense burning and it was not too difficult for me to keep my eye quiet, looking downward. For my co-operation during the operation, I was rewarded with flattering praises on the part of Dr. Horner, whom this surgical intervention on the eye of a friend and colleague affected emotionally perhaps more than it did his patient. The operation was entirely correct and the healing proceeded normally; for a few hours I had a slight burning beneath the bandage, then complete absence of pain. After three days, I was able to get up, and after five days, to go out, with protective goggles. I would have travelled home soon after this, leaving my left eye untouched, if not for the fact that on the sixth day the left eye experienced, without any special cause, a fairly severe attack. Although it responded promptly to eserine drops, it nevertheless induced Horner to perform an operation on this eye as well. I am most grateful to him for this decision, for otherwise my precarious condition would have continued on for years until finally the operation would have had to be performed anyway, under less favorable circumstances.

On the twenty-fifth of March



Dr. Horner operated on my left eye. The pain during the operation was about the same as 8 days previously in the right eye, but it did not subside after a few hours; instead, it even increased after three or four hours and became intense, radiating over the entire left side of the head. After some time I fell asleep for several hours and had no pain upon awakening. From this time on the healing proceeded undisturbed, and on April 4, I was able to leave the clinic.

I remained another 9 days in Zürich where (with the impression of my experiences still fresh in my mind) I dictated my paper, "On the Early Stage of Glaucoma."

Two weeks after the operation I was able to resume the full scope of my activities. The visual acuity at that time was 5/6 of normal.

I had one other attack since then, in April, 1881—I don't remember any more whether in the right or left eye. With this exception, I was fortunate in having experienced no glaucomatous manifestations since then (i.e., in the past twenty-two and one-half years; I hope to remain well for the rest of my life!).\*

I must regard as one of the consequences of the operations a somewhat increased sensitivity of both eyes to light. This symptom had always been marked but was some-

what aggravated by the operation. I have, therefore, since that time, carried dark glasses in my pocket constantly, so as to be able to put them on whenever I should find it necessary (which indeed I used to do in snow, bright sunlight, and even in the city, without feeling self-conscious). Evenings in brightly illuminated rooms or halls, this was never necessary. Even more annoying than this dazzling was my anxiety lest my colleagues would discover that I had undergone an operation upon my eyes. Because of this perhaps stupid thought, I have suffered much and denied myself a good deal. When I conversed with people, especially with physicians, I would not look directly at them, but assume a gloomy expression which I had never exhibited before.

Toward persons who spoke to me at close range and looked directly at me, I felt self-conscious and shy, and I must have impressed them as a man with a guilty conscience. I avoided intercourse with those people who might have recognized that I had been operated upon, especially with other ophthalmologists, and for this reason I refrained repeatedly from attending medical meetings.

The fear of my condition becoming widely known sprang not so much from my concern over the possible deleterious effect it might have on my position and my practice as from the fact that I wanted

\* *Translators' Footnote.*—Up to the time of the author's death in his seventieth year symptoms never appeared.

to avoid the many questions of the sympathetic and the curious which offended my modesty. For this reason, too, I have not published my self-observations to date.

Since my operations, I enjoyed generally good health. The liberation from the burden which had depressed my spirit had a salutary effect on my nutrition and on my temperament. Intercurrent minor indispositions, such as head colds, occasionally but rarely—migraine attacks, toothache, as well as violent emotional disturbances and

great worry, never precipitated a glaucoma attack any more.

I may therefore consider myself as permanently cured. One can just imagine how often, and with what feelings of homage and gratitude I think of my great teacher, A. von Graefe (the inventor of an operation for the treatment of glaucoma\*), without whose discovery I would have become an invalid in the best years of my life.

—PROFESSOR DR. LUDWIG LAQUEUR  
(1839–1909)

*\* Translators' note.*

## News of State Activities

THIS Section is devoted to the reporting of sight conservation activities carried on by official and voluntary agencies throughout the country. It presents information supplied by these groups, and serves as a medium for exchange of experiences. Only brief and timely items can be used, because of the limitations of space

### District of Columbia

"Washington, D. C., has four sight conservation classes for white children and one for colored, according to Health Officer George C. Ruhland. Three of the four white classes are at the Henry School, one of which is for children who are mentally slow. The enrollment for the three classes is 45. Additional equipment is a talking book with radio attachments for each of the three classes. The Lions Club gave two of these books and the Parent-Teachers' Association gave the third book. All of these were acquired last year. Transportation is furnished for all children living in the District.

"At the Langley Junior High School there is the fourth sight conservation class for white children. They also have a talking book given by the Lions Club. The National Library for the Blind provides records whenever they are wanted. This service is free of charge. The enrollment of this class is fifteen.

"The sight conservation class for the colored is at the Douglas-Simmons School. This class has an enrollment of 28 and was established in 1934. At the present time there are 18 boys and 10 girls with grades from 2A to 6B. Bus transportation is provided for 23, trolley car transportation for 3, and 2 children live near enough to walk. All five sight conservation classes are under the control of the School Medical Inspection Service of the Health Department."

—Bureau of Public Health Instruction, District of Columbia  
Health Department, Washington, D. C.

"Visually handicapped children need more mental enrichment than do normal children. It is imperative for them to learn non-

visual uses of leisure and therefore to explore activities which can be pursued without eyestrain.

"Toward this goal the District of Columbia Society for the Prevention of Blindness has taken a small initial step in the form of an Outdoor Club for one of the Washington sight-saving classes. The Club serves the double purpose of getting the children into the fresh air and of stimulating their interest in and knowledge of the world about them.

"A volunteer with a background in science takes the children one afternoon each week on a field trip to nearby points which present interesting geological or botanical features, or which demonstrate the use of natural resources. Such lines of inquiry as arise are followed up. A visit to a flour mill operated by water power leads logically to the construction of water wheels which may be made inexpensively of corks and strawberry boxes, a delightful project which does not tax the eyes.

"Inasmuch as this venture is in an experimental stage, the District of Columbia Society for the Prevention of Blindness will be grateful for suggestions from sight-saving and science teachers."

—*District of Columbia Society for the Prevention of Blindness,  
Washington, D. C.*

### Illinois

"During the past year the Illinois Society for the Prevention of Blindness has organized a Medical Advisory Committee, which we hope eventually will cover the 102 counties of the State of Illinois.

"It is the aim of the Society to find a doctor in each county who will represent the Illinois Society for the Prevention of Blindness to his county medical society, and who will explain prevention of blindness to all the general practitioners in his county.

"A list of qualified men was obtained from the Illinois Medical Society in January of 1940, and since that time the Society has been successful in getting doctors from 77 of the 102 counties to serve on this board. The plan is for each doctor to give a 15-minute paper once a year before his county medical society on prevention of blindness. Each year his paper will deal with a different method of prevention of blindness.

"This year the doctors are giving a paper on sight-saving classes. They are using the material which the Society puts out for them, which consists of:

1. A history of the sight-saving movement, both national and local;
2. The figures for their county on the WPA eye testing projects;
3. A description of what type of child should be referred to sight-saving; and

4. A general talk on diseases of the eye as they occur in school children.

"Already over fifty of the doctors have made their first appearance before their County Medicals. Next year papers will be furnished on ophthalmia by the Illinois Society for Prevention of Blindness which will include national, state and county figures."

—*Illinois Society for the Prevention of Blindness, Chicago, Illinois*

### Minnesota

"*Summary of Activities.*—The Minnesota Society, established in August, 1939, is now in its second year. Recognizing that conservation of vision is largely the responsibility of the individual and his family or group, the Society has concentrated on an educational program through radio talks, syndicated newspaper articles, exhibits, and programs at the State Fair, the Minnesota Educational Association, and similar projects."

—*Minnesota Society for the Prevention of Blindness, St. Paul, Minnesota*

### Missouri

"The Woman's Auxiliary of the Missouri State Medical Society has graciously consented to conduct an essay contest among the school children on the conservation of vision.

"The contest is under the direction of Mrs. James J. Drace, Cape Girardeau, Missouri, for the auxiliary; and Dr. John McLeod, Kansas City, Missouri, for the committee.

"We are placing a speaker on ophthalmic subjects on the programs of every State Councilor District Meeting. (The State Society is divided into districts and each district has an annual meeting.)"

—*Committee on Conservation of Eyesight, Missouri State Medical Society, St. Louis, Missouri*

### Pennsylvania

"*Inter-Branch Conference of the Pennsylvania Association for the Blind.*—The Venango County Branch was indeed happy to have the Inter-Branch Conference of the Pennsylvania Association for the Blind held in Oil City on October 10, 11, and 12, 1940. The sessions included: Prevention of Blindness, Occupational Therapy, Social Work Standards for the Blind, Central Control of Stand Concessions, and the Importance of Organized Retail Sales. Miss Elizabeth G. Gardiner, Medical Social Worker of the National Society for the Prevention of Blindness, discussed 'Qualifications and Experience for Initiating and Administering a Prevention of

Blindness Program.' She supplemented her talk with talking slides, which were not only interesting but also were helpful in clearing up misunderstandings regarding the importance of training and experience in administering a prevention of blindness program. The topics regarding occupational therapy, social work standards, stand concessions, and retail sales were ably discussed, respectively, by Miss Isabel Campbell of the Pennsylvania State Council for the Blind, Dr. Augusta E. Galster, Mr. Joseph F. Clunk of the United States Office of Education, and Mr. Eugene Morgret, Sales Manager of the Pittsburgh Branch, Pennsylvania Association for the Blind. These talks were followed by round table discussions which gave each person present a chance to give his views on the subject under consideration.

"Like most conferences, the Inter-Branch Conference of the Pennsylvania Association for the Blind had its social activities which were equally as important as the discussions. The Venango County Branch gave a reception Thursday evening to welcome the guests and to give them an opportunity, not only of getting better acquainted with each other, but also of meeting the local people interested in the work for the blind. Miss Lilian E. Latimer gave a most enjoyable talk at the Friday luncheon.

"On Friday evening, October 11, the Venango County Branch celebrated its tenth anniversary at a banquet. The highlight of the evening was the address by George F. Meyer, Chief Executive Officer of the New Jersey Commission for the Blind, who spoke on 'Modern Trends in Work for the Blind.' Mr. J. B. Mohler, Superintendent of the Venango County Branch, traced 'The History and Growth of the Branch.'

"On Saturday morning, the superintendents of the various branches met to discuss their problems. Their meeting was followed by a sight-seeing trip to Drake's Well, one of the historic landmarks of Pennsylvania. The Conference concluded with a meeting of the trustees of the Pennsylvania Association for the Blind.

"This Conference was helpful, not only for the information obtained from the various discussions, but also because of the personal contacts which were made possible through the social events. The individual worker, unless he attends conferences, is apt to become narrow and provincial in his views of the work for the blind and the prevention of blindness."

— *Venango County Branch, Pennsylvania Association  
for the Blind, Oil City, Pennsylvania*

"Prevention of blindness activities are going along as many lines as usual. This fall we have been placing a good deal of emphasis

on our isolated sight-saving class children, of whom we now have 48 scattered through 36 different school districts. We have National Youth Administration students copying into bulletin type work which is not available in the twenty-four-point type, with volunteers adding their bit of help every now and then. We have also been giving our usual vision testing demonstrations, and have, since the opening of school in September, screened about 1,000 children. We have begun to review with Department Assistance workers some 150 cases of blind pension recipients who have been recommended medical care for restoration or preservation of vision, and expect to be able later to show some interesting results."

—Pittsburgh Branch, *Pennsylvania Association for the Blind, Pittsburgh, Pennsylvania*

### South Carolina

"*From the Annual Report.*—Sixteen lectures on eye health were given by leading ophthalmologists in the State to approximately 1,700 students of Winthrop College, the Citadel, and the University of South Carolina.

"The Medical Social Worker of the agency has been present at district meetings of county staffs for the purpose of interpreting social and medical implications of blindness, and of the many services which professional and lay groups could render in a program of conservation of vision and prevention of blindness. Instructions were given in the technique of vision taking, information necessary when interviewing applicants for C.C.C., Aid to the Needy Blind, and services from the Division.

"1,457 persons attended the twelve clinics held in the various parts of the State during 1940. Financial investigation was made by respective County Departments of Public Welfare of those found to have vision of 20/70 or poorer. After determination of eligibility, examination and follow-up, treatment was authorized by the Division, resulting in 370 ophthalmological examinations. In addition, necessary treatment was paid for by the parents of a large number of children when the need was explained, and others received medical care through local resources. There is still a large group who should have examination, but whose vision is yet too good to permit them to be considered for service.

"The Division assisted in the purchase of 270 pairs of glasses, given only upon written statement from examining ophthalmologists that glasses were a necessary treatment in conserving vision or preventing blindness, or in the removal of the client from the category of the blind or the partially blind to that of a person with normal or near-normal vision.



"An additional type of service brought out by ophthalmological examination has been that of needed medical treatment for those persons who are unable to supply it for themselves. The co-operation of other agencies has been of great assistance to this part of the program.

"The co-operation of the State Department of Public Health in forwarding to the Division all copies of weekly reports of ophthalmia neonatorum has resulted in follow-up services to several persons for whom it has seemed necessary. Indications are definite that blindness for at least two babies was thus prevented during the past year. South Carolina can be justly proud that it now has a law requiring the use of prophylactic in the eyes of new-born infants. Subject to this recent legislation, the Department of Public Health had printed new birth certificates, recording both time of administering prophylactic and the type used. The 32,567 birth certificates compiled to date have been reviewed by the Medical Social Worker of the Division with the following disclosures: that old forms instead of new ones have been used by both physicians and midwives; and that only 3,167 of the total number indicate any record of the use of the prophylactic required by State law. The Department of Public Health is interested, however, and will make every effort to enforce the use by both midwives and physicians of new certificates for the ensuing year.

"During the past session, co-operation with the School for the Blind, Cedar Spring, South Carolina, has been splendid, and has enabled the Division to render requested services there. Copies of all ophthalmological reports on blind children have been furnished the register, and have provided information for authentic study on causes of blindness in South Carolina. A forward step has been made by the Superintendent of the School in his recommendation to its Board of Commissioners that ophthalmological examination be considered a prerequisite for school entrance. This policy will safeguard both the school and the student, as well as the taxpayer."

—*Division for the Blind, State Department of Public Welfare, Columbia, South Carolina*

### Tennessee

"*Report of State Activities in Sight Conservation from July 1, 1940, to December 1, 1940.*—During the period from July 1 to December 1, 1940, through the co-operation given the Sight Conservation Service by the eye physicians of the state and the financial support given it by the Lions Clubs of Gallatin, Centerville, Nashville, Lafayette, Waverly, Old Hickory, and Memphis, the Big Brothers Organization of Nashville, various Parent-Teacher groups, and interested

individuals, it has been possible for the Service to have varying amounts of sight in one or both eyes restored to 89 persons, 69 being children and 20 being adults—77 of these being restoration by glasses alone and 12 being restoration and prevention of blindness by surgery and glasses. During the same period, either total or partial blindness in one or both eyes either has been or is being prevented for 48 persons, 42 being children and 6 being adults; 36 having blindness prevented from amblyopia exanopsia, all being children; 4 having blindness prevented from sympathetic disease by the enucleation of the injured eye, 2 being adults and 2 being children; 3 having blindness prevented from glaucoma, 2 being adults, who had secondary glaucoma following traumatic cataracts, and one being a child with congenital glaucoma, cataract extractions being done on the 2 adults and Elliott trephines being done on the child with congenital glaucoma; 2 having blindness prevented from trachoma by treatment, both being children; and one each having blindness prevented from retinal detachment, crossed eyes and congenital cataracts by surgery, 2 being children and one being an adult.

"On October 14, our third sight-saving class was established in the Nashville city school system to care for the educational needs of our visually handicapped children from the seventh through the twelfth grades, which gives Nashville one complete unit from the first through the twelfth grades for sight-saving class education. Seven children are at present enrolled in this class, and eight others are available and will probably be enrolled in this class when the next term begins in January. The teacher for this class was trained by a fund established for this purpose for Nashville by the Centennial Club. The Sight Conservation Service supplements her salary for nine months at the rate of \$15.00 per month and furnishes some books, the Nashville city school system decorating the room and furnishing the equipment, as well as the maintenance of the class. Enough children have been found in four other counties of the state, as well as the city of Nashville, to make the establishment of a sight-saving class in these communities practical, and plans are being made by the Service for the establishment of these classes next year.

"During the past five months limited co-operative programs in the prevention of blindness and conservation of vision for indigent school children have been begun with the Big Brothers Organization and the Old Hickory Lions Club for Davidson County, with the Lafayette Lions Club for Macon County, and with the Parent Teacher Council for Montgomery County.

"The District Governor of District Twelve-A, Lions International, has appointed a Lions State Blind Committee to assist the

Director of the Service to plan a program for sight conservation in which all of our 55 Lions Clubs, both individually and as a body, may participate. It is planned that this committee will meet early next year.

"From July 1 to 4, the transcribed fireworks program prepared by the National Society for the Prevention of Blindness was presented over the air by seven of our radio stations, three being in Nashville, one each being in Memphis, Chattanooga, Knoxville and Jackson, and one of these presentations was followed by a talk on 'Blindness Due to Fireworks in Tennessee.' Since July 1 no cases of blindness due to fireworks have been reported to the Sight Conservation Service but, of course, this does not mean that no such accidents to the eyes have occurred.

"On October 12 a meeting on special education was held in Nashville with representatives of all groups of handicapped children being present. Out of this meeting came the formation of three state-wide committees whose purpose is to formulate and prepare a practical and workable program for special education for all groups of handicapped children.

"The survey of the blind of the state is now about 75 per cent completed, comprising 3,126 cases, and the facts coming out of this survey as it now stands indicate: that 65 per cent of this blindness might have been prevented and that between 70 per cent and 80 per cent of the blindness occurring in children in Tennessee might be prevented; that slightly more than 50 per cent of this group have a chance to have sight restored to them in whole or in part in one or both eyes by appropriate ophthalmological measures; and that a large majority of this group have a chance to have enough sight restored to them to permit them to engage in some gainful occupation."

—*Sight Conservation Service, State Department of  
Public Health, Nashville, Tennessee*

## Note and Comment

**Special Publication to Honor Dr. Park Lewis.**—A supplement of the forthcoming REVIEW will be printed in honor of Dr. Park Lewis, our recent Vice-President, whose death was announced in the last issue of the REVIEW. The monograph will contain the tributes paid to Dr. Park Lewis at the annual meeting of the Society. The general subject is "The Heritage Left to Coming Generations by Dr. Park Lewis." Dr. Elliott B. Hague of Buffalo describes the ophthalmological aspects; Mr. Lewis H. Carris, the international aspects; Dr. Ellice M. Alger, the prevention of blindness aspects; and Mr. Charles Pascal Franchot, the humanitarian aspects of Dr. Lewis' gifts to society. Of course, subscribers of the REVIEW will receive the supplement.

**New President of National Society.**—Mason H. Bigelow, a member of the law firm of Gould & Wilkie, One Wall Street, New York City, was elected president of the National Society for the Prevention of Blindness by the board of directors on the occasion of the Society's annual meeting in New York, Thursday, December 12. William Fellowes Morgan, who retired as head of the organization after serving the entire twenty-five years of its history, will have the title of president emeritus.

Mr. Bigelow, a native of Utica, N. Y., was graduated from Amherst College in 1909 and from Columbia University Law School in 1912. He has been a member of the board of directors and executive committee of the National Society for the Prevention of Blindness for the past six years. He is chairman of the executive committee of the Association of the Bar of the City of New York and a member of the executive committee of the New York State Bar Association. He is also a trustee and member of the executive committee of the New York Public Education Association; a member of the board of visitors of Columbia University Law School and a member of the standing committee of its alumni.

Dr. Edward C. Ellett, of Memphis, Tenn., was elected a vice-president to fill the vacancy left by the recent death of Dr. Park

Lewis, of Buffalo, N. Y. Two other vice-presidents are Russell Tyson, of Chicago and Preston S. Millar, of New York City.

Dr. Ellett received the Leslie Dana Gold Medal in 1939 for "outstanding achievements in the prevention of blindness and the conservation of vision." He is former chairman of the Section on Ophthalmology of the American Medical Association, and a former president of both the American Ophthalmological Society and the American Academy of Ophthalmology and Oto-Laryngology.

**Patient Honors Ophthalmologist.**—The following letter was received a short time ago from Borghild M. Dahl, of Minneapolis, Minnesota, who has been handicapped all her life by extremely poor vision: "A year ago, after a period of darkness, I regained my sight through surgery and ophthalmology. The experience was more wonderful than an awakening from the dead. This little poem is an expression of what hundreds must feel because of the efficient and unselfish work of surgeons and others of you who belong to your blessed Association for the Prevention of Blindness."

### LIGHT

(Dedicated to Dr. W. L. Benedict)

The long darkness of a weary night  
Engulfed me tortured on my bed of pain—  
Without the shimmer of a ray of light,  
What happiness could mortal life retain?  
Grief, worry, danger and daily care,  
Which formerly had blocked my way,  
Now seemed mere phantoms high afloat in air  
When likened to a dismal sightless day.

But lo, the blackness lost its gloom;  
And, from my window toward the east,  
A hazy purple filled the room,  
That grew in radiance, heralding a royal  
feast.

And then I knew that with the morn  
I lived again, at dawn reborn.

—BORGHILD DAHL

**National Society Again Participates in Observing National Social Hygiene Day.**—Because of the close relationship between the prevention of blindness and the campaign to stamp out syphilis, the National Society for the Prevention of Blindness again is taking an active part in the observation of National Social Hygiene Day on February 5, 1941. In addition to making venereal disease control and eyesight the subject of a special publicity campaign, the Society is participating in the Regional Conference on this subject to be held in New York City under the auspices of the Social Hygiene Committee of the New York Tuberculosis and Health Association. An exhibit will be maintained, and representatives of the Society will participate in the all-day sessions.

**Eye Accidents on the Skeet Field.**—Attention has been called to the fact that eyes have been lost or seriously damaged by clay target fragments and ricochet shot pellets during the practice of skeet and clay target shotgun shooting. Writes Bob Nichols, the editor of the Arms and Ammunition Department of *Field and Stream*: "The subject of skeet shooting should certainly be included in eye safety propaganda because skeet is not only being used at all U. S. military flying fields, but it will probably be a part of the curriculum of every infantry training school from now on. I have, over a period of years, consistently urged shooters not to fail to wear shooting spectacles made of good optical glass when on the skeet field."

**Study Suggests Moderate Drinking Has Little Effect on Vision.**—Studies made on twenty-one persons, most of them professional men and their wives, showed little evidence that the drinking of moderate amounts of alcohol significantly affects the vision, Z. William Colson, M.D., Boston, reports in *The Journal of the American Medical Association* for November 2.

His investigation was undertaken to determine the immediate visual effects of a few drinks as ordinarily consumed by the drinking public, Dr. Colson says. There was no attempt to appraise the effects of chronic alcohol intoxication.

After preliminary tests of vision had been made for the purpose

of a "before and after" comparison, each subject was given two ounces of good quality rye or scotch with ginger ale or soda or without as he chose. The 2-ounce drinks and tests were repeated at half-hour intervals until the subjects became incapacitated for further tests.

Tests revealed no important effect on visual clarity or color vision and no lessening of the field of vision. Tests for adapting the eyes to sudden darkness also gave negative results except in one case, in which such adaptation was already abnormally low. "These tests suggest that alcohol has no effect on dark adaptation when one's margin of safety is high," the author says, "but it may have a definite effect when through vitamin A deficiency or severe fatigue the reserve is low."

However, he warns that until more accurate tests are devised one should not assume that there is no momentary effect on dark adaptation after the consumption of alcohol. While the tests done in this series show no appreciable change, there may have been changes which the technic employed was not quick enough to catch. Such retardation, if present, would be extremely hazardous in night driving—for example, in seeing objects on the road after being subjected to the glare of oncoming headlights.

Regarding tests of muscle balance of the eyes, Dr. Colson says that all subjects showed a gradually increasing esophoria (tendency to cross eye).

"While no depth perception tests as such were done," he observes, "it seems probable that the esophoria noted would have a definite effect on depth perception. It would seem that one who drinks frequently would be more likely to educate oneself to allow for changes in distance values than would the very occasional drinker. It was suggested to me by Dr. F. H. Verhoeff that the esophoria would affect chiefly the judgment of absolute distance and have no important effect on that of relative depth."

**Committee on Glaucoma Issues Rules for Glaucoma Patients.**—The National Society's Committee on Glaucoma, consisting of Mark J. Schoenberg, M.D., chairman, Ellice M. Alger, M.D., Conrad Berens, M.D., and C. Edith Kerby, the Society's statistician, have approved the following rules for glaucoma patients.



Plans are under way to make reprints of the set of rules available in quantities at cost to hospitals, clinics, practicing ophthalmologists, and other interested groups or individuals. The rules are listed below:

### Rules for Glaucoma Patients

By

Committee on Glaucoma,  
National Society for the Prevention of Blindness

1. Carefully follow your eye physician's instructions and remember especially to return for reexamination at the appointed time.
2. Consult him at once if you see rainbow-colored halos around lights, if the eye becomes painful, or the vision is blurred, or sight impaired in any way at all.
3. Avoid as much as possible excitement, anger, worry, fear or disappointment.
4. Take care that bowel movements are regular.
5. Avoid tight-fitting clothes—especially a tight collar, corset, or belt.
6. Keep your blood circulation active. If occupation compels you to sit the entire day, take a long but not too tiring walk before and after work.
7. Keep your teeth clean and healthy; pay attention to acute or chronic colds.
8. Limit drinking coffee and tea (not too strong) to one cup a day. Avoid alcoholic drinks.
9. Keep bedroom well ventilated and at a moderate temperature; around 70 degrees (Fahrenheit).
10. Avoid dark rooms as much as possible. Go to movies only if your eye physician permits. Remain at the movies for only one feature and, if possible, choose subjects that are not depressing or upsetting for you.
11. Do not use any drops or eye washes without consulting your eye physician. They may be very harmful.
12. Have a periodic (yearly) examination of your entire body by your family physician.

## Current Articles of Interest

**Rôle of Visual Defects in Spelling and Reading Disabilities,** George Spache, Ph.D., *American Journal of Orthopsychiatry*, April, 1940, published quarterly by the George Banta Publishing Company, Menasha, Wisconsin.

This article presents a very wide review of the literature relating to the effect of visual defects on reading and spelling abilities, going back as far as 1917. It includes an extensive bibliography.

From the review of the literature, the author has drawn certain conclusions which may be summarized as follows:

1. Many investigators have made comparisons between the visual characteristics of an experimental and a control group and find insignificant differences between the groups. The apparent implication is that visual defects are probably not causal factors, but it would be possible to assemble a number of case histories clearly demonstrating the causal rôle of any of these defects in individual cases. Normal vision is universally recognized as essential to progress in reading and spelling and it is further recognized that visual defects may be the cause of poor progress in certain cases. Hence, even though data fail to prove that defective vision is a causal factor in retardation *per se*, it does not disprove that defective vision may contribute to retardation. Further evidence that this is so is presented by the fact that correction of defective vision often results in more than average improvement in spelling and reading, especially when combined with remedial reading.

2. Of the refractive errors, hyperopia is frequently present in poor readers and correction of the defect frequently brings markedly improved achievement. Mild myopia is more frequently associated with good reading progress. Astigmatism—hyperopic and myopic—may be associated with either good or poor reading and spelling progress.

3. Evidence favors the belief that muscle imbalances, especially exophoria and the concomitant fusional difficulties, are associated with less than normal reading and spelling progress.

4. Growth in interpupillary distance, which is usually greatest

at about the time the child is in the first grade, may (according to one investigator) require too great an adjustment at a time when the child has many other adjustments to make and, hence, may interfere with reading.

5. Loss of co-ordination results in fusional difficulties and suppression of vision in one eye; both of these difficulties have important concomitants in reading and spelling.

6. The presence of aniseikonia (images of unequal size in the two eyes) in young children apparently constitutes a handicap, and correction of the defect results in marked improvement. However, mature students appear to be able to compensate for this defect and, hence, do not seem to be hindered by its presence.

7. Limited peripheral fields of vision appear to affect the visual span and partially account for perception in small units, which is frequently observed among poor readers and spellers.

**Sulfonamide Treatment of Bacterial and Trachomatous Conjunctivitis**, Dr. A. F. MacCallan, *British Medical Journal*, March 23, 1940, published weekly by the British Medical Association, London, England. Dr. MacCallan explains that the term "sulfonamide" is a generic one embracing the trade-name compounds prontosil rubrum, prontosil soluble, rubiazol, uleron, sulfanilamide, proseptasine, soluseptasine, and sulfapyridine. These compounds probably act by neutralizing a metabolic function or an enzymatic activity and have a bacteriostatic effect on the invading organism dependent in many cases on the defense mechanism of the host. It has been shown, however, that blood from trachomatous persons contains no demonstrable substance capable of inactivating or neutralizing the infective agent.

After the diagnosis of trachoma has been made, the author suggests several procedures that should be carried out before treatment is instituted. These are: cultural examination of the conjunctival flora; slit-lamp examination of the tarsal conjunctiva of the everted upper lid and of the corneal periphery in its upper fifth; a momentary application of Graddy's or Knapp's forceps to the conjunctiva to see if gelatinous material is expressed from the excrescences; and Giemsa-stained epithelial scrapings from the upper tarsal conjunctiva for the detection of inclusion bodies of virus infections.

After the drug course has been completed, these procedures should be repeated and differences noted.

As the drugs of the sulfonamide group have not yet been found to have any effect on virus diseases, Dr. MacCallan concludes that the good results attributed to these drugs have been procured by the elimination of superimposed bacterial infections and states that remarkable results may be expected from this form of treatment in many cases of bacterial conjunctivitis and blepharitis.

**Sympathetic Ophthalmia**, Rodman Irvine, M.D., *Archives of Ophthalmology*, July, 1940, published monthly by the American Medical Association, 535 North Dearborn Street, Chicago, Illinois. From a review of 63 cases of sympathetic uveitis recorded at the Massachusetts Eye and Ear Infirmary, Dr. Irvine concludes:

"In this series there is no instance of sympathetic ophthalmia developing without perforation of the globe.

"If enucleation is to prevent the development of sympathetic uveitis, it must be done before two weeks have elapsed from the time of injury.

"Once sympathetic uveitis has developed, enucleation of the exciting eye has no effect on the course of the disease, and this eye should be retained, if potentially useful, as it may eventually be the better eye. From the available data there is no indication that the exciting eye acts as a focus of infection 'spilling over' into the sympathizing eye.

"Considering the frequency of occurrence of sympathetic ophthalmia, 1 per cent of all perforating injuries, attempts to save severely damaged eyes, especially if the lens is injured, are not justified if the fellow eye is normal. A distinct possibility of sympathetic uveitis must be considered when operation is contemplated on eyes nearly blind from any cause, as, for instance, hemorrhagic glaucoma."

**Glaucoma Errors That I Have Made and That I Have Seen**, Harry S. Gradle, M.D., *Southern Medical Journal*, published monthly by the Southern Medical Association, Empire Building, Birmingham, Alabama. First among the mistakes which Dr. Gradle frankly states are commonly made in treatment of glaucoma is failure to diagnose and classify exactly all the forms examined. Under "primary glaucoma," he notes the uncompensated form, cor-

responding to a great degree to what was earlier called the inflammatory or congestive stage, and, further, whether the condition is acute or chronic; subsequent to the primary uncompensated form of glaucoma is named the compensated, non-inflammatory condition; finally, under primary manifestations, is juvenile glaucoma. Secondary cases constitute the second group. Absolute glaucoma is, of course, the third and final classification. In the belief that glaucoma cases will in future be registered as uncompensated, compensated, or absolute, Dr. Gradle predicts the ultimate disuse of terms indicating primary or secondary phases. As knowledge of the cause of glaucoma advances, increasing numbers of cases will be considered secondary rather than primary. Characterized as a serious universal mistake is failure of ophthalmologists to discuss the disease in detail with glaucoma patients seen in private practice. Failure to tell the clinic patient specifically what is wrong with him is another error scored by Dr. Gradle, who praises the social service work instituted by outstanding hospitals and clinics to educate patients concerning their complaint and win co-operation in preserving such sight as may be saved. In treating cases of acute uncompensated glaucoma, the author confesses to having wasted time in trying to reduce hypertension before resorting to operation, and here suggests 48 to 72 hours after the onset of the attack as a maximum time period for employing non-surgical measures to reduce suffering. It is his thought that more frequent errors occur in diagnosis and treatment of compensated glaucoma cases, which abound in a proportion of ten to one. The article states:

"The bilateral blindness in this country due to various forms of glaucoma has been estimated at anywhere from 8 to 12 per cent; in other words, somewhere between 10,000 and 15,000 individuals of the 120,000 blind in the United States are blind as the result of glaucoma, and fully 90 per cent of that could have been prevented by early diagnosis. We cannot expect the non-medical refractionists or lay people to make an early diagnosis. It is up to us, as ophthalmologists, to diagnose compensated glaucoma in the early stage before damage has been done, and when appropriate treatment will still preserve visual acuity for the patient throughout the rest of his life."

In the author's opinion, the ophthalmologist should view as a potential glaucoma case every patient past 30 years of age. He insists upon the control of tension before and after use of a mydriatic, to ascertain presence or absence of hypertension. An increase in ocular pressure registered after use of a mydriatic is thought sufficiently significant to justify further study to determine if that increase may be an early pre-glaucoma symptom. The prevailing treatment of compensated glaucoma is criticized, since private patients with early forms of compensated glaucoma, given a choice of control by myotics or surgery, consistently choose the former. It is agreed that clinics should perform early surgery, to circumvent later loss of sight through failure of its patients to continue treatment. But Dr. Gradle deplores basing medical control of compensated glaucoma on pressure measurements, arguing that unless the three functions of vision are preserved by the treatment administered, maintenance of "normal" tension in the glaucomatous eye is no proof of successful control of the disease. He states: "The pressure we must know in order to know what the degree is, but our estimation of the efficacy of the treatment must depend upon repeated and comparative measures of the function of the eye, and the function consists of central visual acuity, central visual fields, and peripheral fields."

**Paradoxic Monocular Ptosis**, Tomas R. Yanes, M.D., *Archives of Ophthalmology*, June, 1940, published monthly by the American Medical Association, 535 North Dearborn Street, Chicago. The author contrasts the history of a patient with the few similar recorded cases, his presenting symptoms at once markedly like and unlike those reviewed in earlier medical literature. Briefly, the subject suffered failing vision in the left eye and deviation of the eye outward, accompanied by almost complete occlusion caused by paralytic drooping of the upper lid. The latter condition was observed to disappear completely when the right eye had been occluded, or when the affected left eye was directed inward or outward. Vision of the right eye was normal; that of the left eye, 1/20, though both media and fundi were normal. A history of incomplete treatment for an old syphilitic infection was elicited, and operation for cosmetic effect was requested. Surgery, which

revealed unnoticed slight exophthalmos, produced an esthetic amelioration of the ptosis when the eye was in a central position, the lid pressing on the cornea. Tucking of the levator muscle produced further improvement, the paralytic drooping of the lid being imperceptible when the unaffected eye is closed or occluded, or when the gaze is directed inward or outward. The author tabulates and contrasts the symptoms observed in his patient with those of the only other detailed case recorded, observing that any pathogenic interpretation of this phenomenon would probably be fallacious. It is believed that these few rare cases of paralytic monocular ptosis form a diagnostic basis for closer study of the functional paralysis of ocular movements.



## Book Reviews

THE CLINICAL AND EXPERIMENTAL USE OF SULFANILAMIDE, SULFAPYRIDINE AND ALLIED COMPOUNDS. Perrin H. Long, M.D., and Eleanor A. Bliss, Sc.D. Baltimore. The Macmillan Company, 1939. 319 p.

The short space of time elapsing between the discovery of sulfanilamide and sulfapyridine as therapeutic agents and the present in which they play a role of paramount importance in the treatment of a wide range of diseases has left most practitioners far behind the front line of progress and more than a little in doubt as to the indications, method of treatment and dangers associated with the use of these and related compounds. This ignorance has prevented the use of these drugs in many cases when they might not only have been helpful but actually life saving. Long and Bliss have done an outstanding piece of work in gathering together the available literature, to which they have added an enormous amount of their own experimental and clinical observations. These they have organized into a compact, practical and authoritative text which takes up the history, the experimental basis, the clinical use and the toxic manifestations of these compounds, and which gives an evaluation of the use of each in the diseases on which they have been tried. A rational mode of therapy, with detailed and explicit information, is included as well as two very helpful treatment tables for the use of sulfanilamide.

Although little space is devoted to eye diseases, as the authors have had little personal experience with the use of these preparations in them, they quote the good results of others in the treatment of gonorrheal ophthalmia, trachoma, and orbital cellulitis. They also quote an interesting case of toxic optic neuritis developing after the use of sulfanilamide.

This work definitely puts chemotherapy with this group of compounds on a scientific basis and should banish the cloud of doubt and fear which has persisted in many medical minds regarding the use of these new preparations.

—HENRY B. ABBOTT, M.D.

A WORKBOOK IN HEALTH FOR HIGH SCHOOL GIRLS. Gladys B. Gogle, M.S. New York: A. S. Barnes and Co., 1938. 267 p.

As indicated in the title, this publication should not be considered as a textbook, but rather as an outline for teachers and a guide for students in their joint effort to meet the health problems of the high school girl.

The work is divided into two books, each comprised of a number of units, and each unit subdivided into three problems. Book I deals with personal hygiene problems common to high school girls. Book II continues this study, placing more stress on the physiological background. In this section also the pupil is encouraged to consider herself objectively rather than subjectively, and in so doing gain an introduction to mental and to community hygiene.

In the foreword to teachers the unit arrangement is mentioned as a means of meeting the individual needs of the students. Here, also, mention is made of possible sources of supplementary materials and visual aids, and suggestions offered for the use of such materials. The author points out that since this publication is an outline, pupils should be encouraged to gather information from several of the books mentioned in the bibliography.

The foreword to pupils is frank and intimate, and should appeal to the average high school girl. The provision of duplicate medical and physical examination blanks, with the suggestion that the student copy her record, is an excellent idea. A personal interview with the health counselor, based on examination findings, would be of great value if this workbook is to be used as a basis for the entire course in hygiene.

Considerable emphasis is placed on the periodic checking of health habit charts. While there is a degree of interest in this type of personal inventory, there is danger of lessening the interest through too frequent checking of the same chart. Such may not be the case in a situation where one teacher has the privilege of being health counselor to the same group of girls throughout their high school course, and has been able to work out individual health problems with them over a period of time. This ideal situation is unfortunately the exception, rather than the rule.

The checking of the period chart is important, although explanation and discussion of the menstrual cycle, not necessarily as com-

plete as is given in Book II, seem imperative as a prerequisite to keeping such a record.

Judging from the arrangement of the workbook, pages may be torn loose at the perforations and handed in as homework or class work. From the standpoint of uniform notebooks and standardization of questions, such a plan is convenient and to some degree commendable. Too often questioning in hygiene matters calls for the correct answer with little real thinking, knowledge, or practice, to corroborate it. The questions as stated in this outline are well planned and interesting enough to stimulate thought and reasoning.

Two difficulties present themselves at this point. In most schools hygiene is a minor subject and as such calls for no outside preparation. In addition to this, the time allotted for health teaching is limited. Many of the topics in the various units, if they are to be adequately covered, call not only for preparation on the part of the pupil, but also for considerable explanation on the part of the teacher. "Understanding the Importance of Safeguarding Eyes and Ears" presents just such a difficulty. In this unit the structure, function and care of the normal eye, temporary impairment of vision, errors in refraction and correction of such errors, and diseases that affect the eye are dealt with in detail. A short discussion of the structure and care of the ear is also included. High school students, particularly those having little or no scientific background, do not grasp such material readily. It would add considerable interest to such a topic if special reports could be made on the work being carried on for the prevention of blindness and deafness, and where feasible, actual visits made to organizations and institutions carrying on preventive programs. Other problems such as, "To Observe Your Own Posture Needs," present similar difficulties. The unit plan previously mentioned might solve the situation to some extent. For the present, however, the questions of recognition of the importance of hygiene in the school curriculum and of adequate time allotment for health teaching, remain ever present and seemingly insurmountable difficulties.

The use of Miss Gogle's *Workbook in Health for High School Girls* should prove an interesting experiment for any teacher of hygiene who will remember that the author is not offering a substitute for careful lesson planning, but is giving from the wealth of

her own experience, guideposts to the better understanding of the health problems of our high school girls.

—GERTRUDE W. SYME

#### Briefer Comment

REMEDIAL READING AT THE COLLEGE AND ADULT LEVELS, An Experimental Study. G. T. Buswell. Chicago: The University of Chicago, 1939. 72 p.

This study, by way of introduction, reviews the recent development of remedial reading research and techniques. The present monograph—Number Fifty in a series of Supplementary Education Monographs of the University of Chicago, published in conjunction with *The School Review* and *The Elementary School Journal*—discusses the reading problem in the light of practical implications and limitations which must be recognized when dealing with mature persons, and outlines experiments aimed at the possibility of improving a small group of factors basic to the reading process—vocalization, vocabulary, span of recognition, speed of recognition, and regularity of procedure. The specific objective was to discover in what manner and to what extent improvement could be effected in factors important to the reading process, and whether such improvement could be accomplished through remedial studies absorbing twenty one-hour periods, with proportionate further improvement after prolonged participation. It is emphasized that these college-age and adult students originally suffered no inability to comprehend, but a difficulty in reading with reasonable speed within the range of their individual experiences, and the gains recorded affected the reading process rather than comprehension scores. Median gains are shown, in percentages, of rapid, medium, and slow readers in span of recognition, reduction of regressive movements, speed of recognition, and rate of reading as measured by eye-movement records, and indicate a large degree of improvement.

## Current Publications on Sight Conservation

**Note.**—The National Society for the Prevention of Blindness presents the most recent additions to its stock of publications. Except for the more expensive ones, single copies are sent free upon request. Unless otherwise specified, they are reprinted from *THE SIGHT-SAVING REVIEW*. New publications will be announced quarterly.

**339. The School Ophthalmic Service**, Austin Furniss. 12 p. 10 cts. Since the school set-up in England varies from the American, only those parts of this author's article which have an application to American conditions have been included in this extract.

**340. A New Concept of Visual Performance in Industry**, Hedwig S. Kuhn, M.D. 16 p. 10 cts. Points out the relation of eyesight to industrial efficiency and emphasizes the necessity of analyzing visual performance and its relation to the job.

**341. The General Agency's Opportunity for Sight Conservation Among Older People**, Margaret W. Wagner. 16 p. 10 cts. Emphasizes the necessity for better understanding by the ophthalmologist of the older patient and the part the case worker can play in establishing such an understanding.

**342. Mental Health for Sight-Saving Class Pupils**, Ingeborg Nyström. 16 p. 10 cts. Discusses the various factors in school and the home which can bring about a state of mental health in sight-saving

class pupils whose psychological problems may be somewhat intensified by their visual handicap.

**343. History of My Glaucoma (Laqueur)**, Translation by Adolph Posner, M.D., and Mark J. Schoenberg, M.D. 16 p. 5 cts. A worthwhile addition to the literature which helps the ophthalmologist understand the patient's attitude towards glaucoma.

**D139. Glaucoma—A Thief in the Night**, Daniel B. Kerby, M.D. 4 p. (\$1.00 per C; \$7.50 per M.) A popular explanation of glaucoma. Reprinted from *Hygeia*, December, 1940.

**D140. Standards for Outpatient Ophthalmic Departments**, Conrad Berens, M.D., Ruth C. Williams, R.N., and Eleanor Brown Merrill. 8 p. 5 cts. Consists of Part II, "Standards for Nursing Service," and Part III, "Standards for Medical Social Service." To be used in conjunction with the Society's publication D127, "Standards for Out-Patient Service in Ophthalmology," by Conrad Berens, M.D. Reprinted from the *American Journal of Ophthalmology*, December, 1940.

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